THE ROLE OF TECHNOLOGY IN A 21st CENTURY PEDAGOGY

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CONTENTS

ABSTRACT

The need for change within the Further Education sector in line with technological developments in our current society was apparent within my teaching practice. This led to a number of thoughts about virtual learning environments and its application within the teaching role. The role of the computer as a real socio-cultural learning environment was explored to examine if this environment could be nearer to the concrete experiential and situated learning environment that students came from at an early age. It was hoped that this would be a different learning environment that would start slowly and grow in an organic way. It involved the growth of a very different culture of learning, a learning environment that may include a different literature and with different ways of thinking about what is to be learned and how to learn it. It was also hoped that the virtual learning environment would provide a very powerful strategy to allow the operation of the principle of variation and selection which it needed within the college Learnwise Educational system.

Education should shift from individual, technology-free cognition to a resourceful collaborative learning, and distributed intelligence. Learners should be empowered through thoughtful and innovative use of technologies, and benefit from social distributions of cognitions. Salomon et al.'s (1998) commented that education should pay more attention to the "effects of" technology rather than the "effects with" technology, so that autonomous performance may be achieved. The attempt of the first part of the research has been to investigate a student-centred strategy in a computer supported collaborative learning environment to see whether this kind of higher-order knowledge can be distributed among peers and environment.

The starting point of the second part of my research focussed on the links between constructivist theory and knowledge management in relation to college teaching practice. Since this research formed part of a whole college restructuring of teaching and learning, a baseline for current practice was necessary. Literature concerning the use of technology was explored in order to benchmark where the college was at the start of the research. As a result of this initial investigation, a survey of current college practice resulted in a paper being accepted by the HE Academy at their 8th Annual Conference in 2007.

Results from this research indicated that, although the college displayed similar results to other FE establishments, it was imperative that a move to a new building with a digital environment philosophy required more than merely a physical move. As a result, research into emerging technologies was deemed to be important if the college was to take advantage of a new digital teaching concept. Investigation into collaborative tools and Web 2.0 techniques was seen as appropriate at this stage. The study of computer-supported collaboration included the study of this software and social phenomena associated with it. Through this element of research it was hoped to investigate these collaborative techniques in the light of constructivist theories in order to develop an appropriate and effective digital teaching model.

Expanding the research to explore portal technologies, with a particular focus on the integration of teaching practice, would hopefully highlight a possible path connecting current practices to an educational portal and illuminate the benefits and challenges of such an endeavour. Acquiring and deploying Web-based collaborative functionality within an organisation has become a strategic move to improve relationships between employees, partners and customers. The ultimate aim of the research and hence the thesis being addressed, will be to show that it is possible to create a “Learning or College Gateway” as a solutions framework that helps improve education by integrating the tools staff and students already use and puts them to work connecting people with the information and processes they need to teach, learn and manage more effectively. This will create a powerful educational portal that enables the people throughout the college to share information and work together on activities from a single point of access. The gateway will therefore use innovative collaboration and communications technologies to help staff get more out of existing applications using familiar tools and extending the value of investment made in existing learning environment technologies. The aim of the research was partly answered by using project based scenarios which gave some staff a new insight into the use of ICT. However, those involved in projects were generally the more pro-active teachers. A slightly different approach is needed and College Management has been advised to explore the use of an interactive college intranet and a dedicated eLearning team as a possible way forward.

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Chapter 1: Introduction

1.1 Motivation for the Work

Research as part of my professional development started when I became aware of technology claims concerning changes in society, changes in work practices, changes in leisure activities, changes in communications and many more.

If society was changing so rapidly, I wondered, therefore, where the changes were taking place in education. The technological revolution had gained momentum in the outside world yet it appeared sedentary in the educational world or at least in my educational world. I hoped to discover evidence of the educational technological revolution and implement this in my own practice. Discussion with a colleague, Dr. Alan Largey (2000) of Ulster University, led me to an observation in his PhD thesis “A Multimedia Pedagogy” regarding Seymour Papert's, The Children's Machine (1993). Papert (1993) stated that school is changing along with the outside world, but the change is almost imperceptible. Largey (2000) felt Papert had raised some valid observations. My observations on the other hand, seemed to indicate that organisations within education were barely changing. Schools and college activities had changed little over its history.

College is a place; a physical environment where teaching takes place.
It seemed to me that there was more emphasis on teaching and what had to be taught, than on learning and on what was to be learned. My challenge was to explore a possible new approach to learning environments. In particular, I had become fascinated by the development of multimedia content and the use of Virtual Learning Environments, which I saw as a platform for change. Here was my chance to research the electronic environment and explore its effect on the quality of teaching and learning.

1.2 Aims and Research Questions

Aim

The aim of this research was to explore the possibility of creating a new digital model for teaching and learning within an academic college environment. This would result in a "road map" that educational establishments could refer to when considering the integration of technology into their teaching and learning strategy.

Through practice based research, I have explored the following research questions:

- What are the barriers to teaching staff using ICT in their practice and can this engagement be improved? (Supporting material 3 (1))
- Is there an ideal set of techniques or technologies that engages students in learning? (Supporting material 3 (2) and (4))
- Is there a digital environment that can be replicated throughout teaching practice and applied to all curriculum areas? (Supporting material 3 (3) and Supporting material 4 (1) and (2))

The appropriateness and practical issues surrounding current teaching skills will form the final part of the research questions in order to determine a working model of practice (Road Map)[1].

[1] Supp. Mat. 3 (28)

1.3 Structure of the Commentary and Supporting Evidence

1.3.1 Commentary and Supporting Material Reading Plan

Commentary Chapter	Chapter Content
Chapter 1 Introduction 1.1 Motivation for the work 1.2 Aim and Research Questions 1.3 Structure of Commentary and the Supporting Evidence	A description of why the work was undertaken, the aims and research questions and a description of the commentary and supporting material structure and how it was derived.
Chapter 2 Career Reflections 2.1 Teaching Career 2.2 Summary	A description of my teaching career and how my interest in this research was shaped and how my professional practice was influenced by the doctoral work.
Chapter 3 Literature Review 3.1 Learning Theories 3.2 Virtual and Managed Learning Environments 3.3 Computer Supported Intentional Learning Environments 3.4 Summary	A review of learning theories and the use of Virtual Learning Environments that led to a specific approach to my practice. An explanation of how the literature informed my doctoral projects
Chapter 4 Research Methodology 4.1 Overall approach 4.2 Methods 4.3 Research Plan	Discussion of the various methods used referring to action research, case studies and supporting material. The methods adopted such as questionnaires, observations and interviews are described along with my research plan.
Chapter 5 Discussion	Discussion of the main findings from various projects with extensive references to the supporting evidence
Chapter 6 Conclusions 6.1 Achievement of Aim and Research Questions 6.2 Contribution to Practice 6.3 Personal Journey	Discussion of how the aims and research questions were achieved. This chapter includes how the research contributes to practice and a “Road Map” for practitioners is discussed along with my own personal journey and what I learned from this doctoral work.

1.3.2 The development of the Commentary and Supporting Evidence

Constructivist theorists (Bruffee, K ;1999) argue that human subjects are the constructors of their own knowledge and skills. Knowledge, therefore, cannot exist independently of ”knowers”: humans constantly construct meanings. This is why knowledge always shifts and expands. Since humans construct knowledge, it is speculative, incomplete and sometimes contradictory. Knowledge is likely to be fallible, and so some things that are assumed to be facts, are challenged in the light of new discoveries.(Crowder R, et al; 2003). This concept was the starting point of this research and focussed on the links between constructivism theory and knowledge management in relation to college teaching practice.

In 2006 I was asked to take on the role of ILT Project Manager and explore the College requirements for integrating technology into teaching and learning. This role was also intended to take into account the college move in 2008 to a new £26m build which would embrace the concept of a digital environment. Some initial investigations into current thinking concerning FE teachers and their use of ICT in their practice led me to review literature in this field with the starting point being work carried out by Becta in 2004.

> Becta (2004). A Review of the Research Literature on Barriers to the Uptake of ICT by Teachers. http://www.becta.org.uk/page_documents/research/barriers.pdf

This paper indicated that generally teaching staff were not productively engaged with ICT and the author gave a number of reasons for this (e.g. lack of time, equipment and reluctance to change). This research paper offered me the opportunity to explore the current college environment and determine whether staff were engaging with ICT or as Becta had found in other cases, were resistant to adopting such a change. In line with my college role I also presented a series of management papers setting out a potential development plan for the college. The papers included:

- A strategy for Blended Learning (Sept 2006).[2]
- The development of an eLibrary and collaborative infrastructure (Oct 2006).[3]
- eLearning: the future trends (Nov 2006).[4]
- eLearning: a review of emerging technologies (Nov 2006). [5]

[2] Supp. Mat. 3 (7)
[3] Supp. Mat. 3 (8)
[4] Supp. Mat. 3 (11)

In addition to a literature review, I decided to enhance teachers ICT experience by implementing a series of projects based around trends in blended learning and Web 2.0 techniques. This resulted again in a number of project reports:

- Collaborative working project proposal (Sept 2006)[6]
- Blended learning and eLearning project progress report (Oct 2006)[7]

By the end of 2006 I was in a position to evaluate the college use of ICT in teaching and learning and had formulated a range of texts that related to my findings. 2007 therefore represented a year of consolidation of this information in terms of presenting my college management with not only my findings but a suggested path forward for the transition to the new college building.

In January 2007 I presented the college management with a review document entitled:

"The use of ICT in teaching and learning"[8]

This review comprises my literature reviews and the results obtained from a staff audit and interview process. The findings matched those highlighted in teaching research, that ICT use by teachers was not wide-spread and a range of barriers were evident that needed addressing (Becta; 2004). As a result, I presented a number of project proposals to explore solutions to our problems and I also presented my findings at the HE Academy ICS annual conference in August 2007 and a JISC on-line conference in March 2007(see Chapter 2). These papers had many of my literature review texts listed as references. Throughout the year I therefore worked with staff and managers on developing a suitable professional development programme and integrating projects to enhance their understanding of ICT in their practice. A number of papers were subsequently presented to management that set out suggested projects to explore aspects of collaboration and social networking (Web 2.0 techniques) as well as progress reports on the development of the college blended learning policy.

[5] Supp. Mat. 3 (10)
[6] Supp. Mat. 3 (6), (8)
[7] Supp. Mat. 4 (3)
[8] Supp. Mat. 3 (14)

These papers included:

- Blended Learning progress reports (monthly))[9]
- Collaboration (Oct 2007)[10]
- Development of Social networking (Oct 2007)[11]
- Second Life (Oct 2007)[12]

This research indicated that, although the college displayed a similar approach regarding their readiness to adopt ICT as other FE establishments, it was imperative that a move to a new building with a digital environment philosophy required more than merely a physical change. As a result, I decided to research emerging technologies since this appeared to be of some importance if the college was to take advantage of a new digital teaching concept.

Investigation into collaborative tools and Web 2.0 techniques was my main emphasis at this stage. The changes in the Internet from an information source to an interactive one offered me the opportunity to explore its value within an educational environment. Collaborative software is software designed to help people involved in a common task achieve their goals. Collaborative software is the basis for computer supported cooperative work. Software systems such as email, calendaring, text chat, and wikis belong in this category. It has been suggested that Metcalfe's law — the more people use something, the more valuable it becomes — applies to such software (Shapiro C and Varian H R; 1999).

The more general term social software applies to systems used outside the workplace, for example, online dating services and social networks like Facebook. My focus was to explore that if staff used such tools they ultimately engaged in a wider use of ICT in their practice.

During my MSc Learning Technologies studies, my focus was on how the introduction of a virtual learning environment into a formal educational setting such as a classroom or timetabled course, changed the role of the teacher.

[9] Supp. Mat. 4 (3)
[10] Supp. Mat. 3 (15)
[11] Supp. Mat. 3 (18), (19)
[12] Supp. Mat. 3 (16)

The students became able to alter radically their pattern of working and learning with respect to both when they worked and with whom they learned. This offered a substantial change to a student's learning experience.

The development of usable virtual learning environments usually requires a mix of teacher skills from a range of disciplines including computer science, cognitive psychology, instructional design, artificial intelligence, human computer interaction, educational technology and expertise in the subject being learned (O'Shea ; 1997). This concept of using a tool to engage users in a new way was therefore the basis of my current research into using collaboration and social networking. Success in such applications would engage staff in alternative practice using technology.

Learning is a social process and development is linked to the specific culture in which learning activities are shared (Vygotsky 1978). Learning is situated in the dual contexts of culture and learning environment and that learning involves the interaction of learners and experts within them. (J. Lave 1988).

This development of a new learning concept led me to a literature search on whether the future of learning lies in the development of virtual environments or possibly in the direction of personalising learning with the use of technology. The starting point for this research was a JISC report by P Anderson (2007):

> Anderson, P., What is Web 2.0? Ideas, technologies and implications for education. JISC Technology and Standards Watch, 32-45 (2007). http://www.jisc.ac.uk/media/documents/techwatch/tsw0701b.pdf

Some examples of the texts explored are shown below:

> Britain S & Liber O. *A Framework for Pedagogical Evaluation of eLearning Environments*, Report to JISC Technology Applications Programme, (2004).
>
> Clark, D *Why I love PLEs and hate VLEs (or LMSs)(2007) from* http://donaldclarkplanb.blogspot.com/2007/03/why-i-love-ples-and-hate-vles-or-lmss.html
>
> O'Donoghue, J. Technology Supported learning: a staff perspective, London, Information Science Publishing (2005).
>
> Prensky, M., "Digital natives, Digital Immigrants", On the Horizon (NCB University Press, Vol. 9 No. 5, October 2001). http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part2.pdf
>
> van Harmelen, M. Personal Learning Environments (2006) from http://octette.cs.man.ac.uk/~mark/docs/MvH_PLEs_ICALT.pdf

These texts gave an insight into how technology was changing with respect to Web tools and applications. In addition they offered some understanding as to how technology was supporting learning and the current views on both users and support environments. This literature search led me to an investigation into the access activities of the college VLE[13]. Results seemed to indicate that students use facilities mainly for social or learning networking reasons. Collaboration and communication activities form the major basis of VLE use.

Two courses were given access to Web 2.0 technologies in the form of wikis, podcasts and video material. However, no great improvement in learning was determined, but students did express that these tools provided and added interest to the course.

Providing students with facilities to organize their own personal learning environments and access to tools for such an approach would help create a more integrated and dynamic environment that improves the integration of learning within their daily lives.

This approach led me to explore the possible creation of adaptive personal environments integrated with assessment in the form of ePortfolio development. The use of third party solutions or the integration of add-ins to the college VLE was investigated. The question of security and support however is an issue that will be considered, but a shift towards student centred control from institutional control is rapidly becoming a viable option.

There seemed to be many options but what was reasonably consistent was that an ideal set of tools would contain shared file storage, organiser, search and bookmark tool, messaging or chat facilities and a media centre for audio, video and digital pictures. Access to web space and the means to create an ePortfolio are other desirable tools or facilities.

[13] Supp. Mat. 3 (5)

The resulting concept of moving control from the institution to the student was further explored resulting in a paper presented at the HE Academy 9th Annual Conference in August 2008[14] and the Teaching and Learning conference at Teesside University[15].

In addition I raised a series of management reports questioning the possible future tools within teaching and learning. These papers included:

- ePortfolios in Learning Support and NVQ courses (Feb 2008)[16].
- Ubiquitous Computing (Feb 2008).[17]
- Electronic student induction (Feb 2008).[18]
- College Digital TV and radio (Dec 2008).[19]

I then expanded the research to explore portal technologies, with a particular focus on the integration of teaching practice, which I hoped would highlight a possible path connecting current practices to an educational portal and illuminate the benefits and challenges of such an endeavour. Acquiring and deploying Web-based collaborative functionality within an organisation has become a strategic move to improve relationships between employees, partners and customers.

Most of the interactions with these parties involve content creation, content-driven processes, ad-hoc decision-making and discussions. However, today most team-based content creation is inefficient and costly. My research aim at this point was to explore how one could create, complete and update collaborative content, where currently native files are passed back and forth via email; an unruly process that clogs networks, ties up server storage, and complicates editing and revision. A Web-accessible and centralised “digital workspace” would facilitate content collaboration and gives staff a system to search and access all project-related content. I hoped this area of research would result in a model of best practice for college academic collaboration. The ultimate aim being to show that it is possible to create a “Learning or College Gateway” as a solutions framework that helps improve education by integrating the tools staff and students already use and puts them to work connecting people with the information and processes they need to teach, learn and manage more effectively.

[14] Supp. Mat. 3 (3)
[15] Supp. Mat 3 (4)
[16] Supp. Mat. 3 (22)
[17] Supp. Mat. 3 (17)
[18] Supp. Mat. 3 (21)
[19] Supp. Mat. 3 (23)

This would, hopefully, create a powerful educational portal that enables users throughout the college to share information and work together on activities from a single point of access.

The gateway would use innovative collaboration and communications technologies to help staff get more out of existing applications, using familiar tools and extending the value of investment made in existing learning environment technologies[20].

[20] Supp. Mat. 3 (7), Supp. Mat 4 (1)

Chapter 2: Career Reflections

2.1 Teaching Career

In 1980 I started my teaching career as a part-time Computing lecturer in a Further Education College. Four years later I decided to make a career change into full time teaching and have spent the last twenty five years teaching and managing Computing Departments in a variety of colleges. My move to the North East in the early 90s, the acquisition of a Certificate in Education and a Post Graduate qualification in Computer Science, led me to explore teaching styles and various approaches to delivering learning material through a number of learning technologies.

Around the time of my relocation to the North East, I was becoming increasingly aware of changes that were happening in society as a whole. There was a general consensus that the technological revolution would affect all our lives. I was aware of these claims concerning changes in society, changes in work practices, changes in leisure activities, changes in communications and many more, all attributable to technological development. There were those who forecast that it would be possible to work from home by linking your computer to a telephone line. I was a very early user of the fascinating new developments of the mobile phone. In fact I was fortunate to have experienced, first hand, how the revolutionary process accelerated.

Humans in their present form have been around for about 35,000 to 50,000 years (Stringer, C.B. 1994), yet writing did not exist until about 6,000 years ago (Dryden and Voss 1994). It took another 2,000 years for the alphabet to be created and it was only in the 11th century that the Chinese started printing books (Carter, Thomas; 1925). The first European book wasn't printed until the 15th century (Burke J. 1985). It has only been in the last hundred years that the process has begun to accelerate at a rapid pace.

In the hundred years between the typewriter (1872) and the microprocessor (1971), we have seen the development of the telephone, typesetting machine, silent movies, radio signals, talking movies, and the beginnings of television (Bunch, Bryan and Hellemans, Alexander; 1993).

However, over the last 40 years we have had some giant leaps in technology from the introduction of the mobile phone, changes in communication, satellite television and perhaps the most life changing, the Internet.

Society began to create occupations that were not in existence five to ten years earlier, and individuals were even doing jobs that didn't exist when they were born or when they started school. Industrial and commercial working environments were being transformed through the use of technology. If society was changing so rapidly, I wondered, therefore, where the changes were taking place in education.

I had difficulty conceptualising the educational transformation. I began to look more closely at the use of computing in particular curriculum areas. I looked at the use of personal computers by other departments and found that in general they were being used as mainly class electronic typewriters. The technological revolution had gained momentum in the outside world yet it appeared sedentary in the educational world or at least in my educational world. To understand this I had to look at what I was doing, what was happening in other institutes, network with others who felt the same as me and to develop some sort of radical approach that would make the use of computing in education more meaningful. I hoped to discover evidence of the educational technological revolution.

My first stage was to consult my colleagues and then to look outside my establishment at what others in the educational world were saying. Teaching staff could be divided into those who were content with the present use and those who were disappointed and were looking for much more.

Papert (1993) described this split as consisting of Yearners and Schoolers. As a Yearner I saw such potential from ICT. The schoolers on the other hand, were of the opinion that teaching would not change due to technology. At the same time I looked outside of education as to what was happening in the commercial world. It was here that I encountered multimedia. It was this integration of media that I was able to use within the classroom environment for my students. It was this multimedia that formed the basis of how I developed my practice.

With reference to education as a whole the first major milestone I reached was at the recommendation of a colleague, Dr. Alan Largey (2000) of Ulster University, to an observation in his PhD thesis “A Multimedia Pedagogy” regarding Seymour Papert's, The Children's Machine (1993). In it Papert stated that school is changing along with the outside world, but the change is almost imperceptible. He gets the reader to imagine a party of time travelers who come from an earlier time to our century. The party consists of a group of surgeons and another group of schoolteachers. They have arrived to see the 'future' of their respective professions after 100 years or so.

He asked what the surgeons would make of the operating theatre of today. They would know that an operation was taking place but could only guess at the purposes of the array of electronic devices and machines. The lights, instruments and sounds would be generally unfamiliar to them. He commented that the teachers would encounter a somewhat different environment. Some objects might puzzle them and some techniques, it could be argued, had changed, but generally most would see the point of what was going on and could probably take over the lesson there and then. Largey (2000) felt Papert had raised some valid observations. The organisations within education were barely changing. Schools and college activities had changed little over its history. Largey agreed also that we were living through a technological change that was altering the way we lived, communicated, thought and prospered. Yet our educational establishments were preparing individuals for a world that was rapidly disappearing.

Largey believed that here was a technological revolution in progress, which was crying out for better learning to keep it going. I agreed with Largey that perhaps this technological revolution could be the very thing that could offer us the means of supplying the environments for better learning. It was becoming evident through my investigations that teaching appeared to be one of isolation; similar activities running parallel in several classrooms without much change, if any, year after year. It could also be implied that most teachers probably taught the way they were taught.

Largey (2000) stated that Papert described education as the 'Cathedral Model’. To construct a great Gothic Cathedral requires tight programming. It is not plausible to allow builders to take independent action in this construction.

Careful planning is required. The curriculum designer is the 'Knowledge Architect' who specifies a plan, a tight programme, for the placement of 'knowledge bricks' in student's minds. Largey (2000) questioned if such a model was really suitable for education today or was this type of model actually holding back change?

My challenge was to explore a possible new approach to learning environments. In particular I had become fascinated by the development of multimedia content and the use of Virtual Learning Environments, which I saw as a platform for change. How could I use these developments to create the classroom of the future or more precisely the "learning environment" of the future? As it happened the opportunity presented itself in the form of a range of courses developed by the University of Ulster that were designed to be delivered using a VLE within a student centred environment. Here was my chance to research the electronic environment and explore its effect on the quality of teaching and learning. During the period 2003-2004, this part of my professional development, and the eventual completion of an MSc dissertation, was a consequence of an action research project and a series of case studies that provide the evidence to support my hypotheses.[21]

2.2 Summary

My challenge, to explore a possible new approach to learning environments, was very much shaped by my professional and personal values. In order to understand how our educational system had evolved, I undertook a considerable literature search that provided me with an understanding of current teaching practices. I was a practitioner who believed in student centred learning and this provided a professional approach that embraced the use of technology in my practice. In addition, I also had a strong conviction towards the use of the rapidly expanding world of Virtual Learning Environments.

I saw these tools as an ideal opportunity to engage students in their learning, not only in the classroom but outside the formal teaching environment. My interest in media and its potential educational use offered an exciting platform for developing course material that would not only be exciting but could offer new ways of engaging students. The challenge was to be able to integrate these tools into a viable and successful environment for learning..

[21] Supp. Mat. 1

Chapter 3: Literature Review

3.1 Learning Theories

According to M.J. Stiles (2000), all the current enthusiasm for distributed learning is largely based around the flexibility and power that the WWW and its associated technologies offer, and the fact that, possibly for the first time in the history of the use of communications and information technology in learning, these technologies are increasingly "ubiquitous".

He also stated that it is the case that the prime foci of this enthusiasm are the technology itself and the large "agenda" goals that are striven for. Without focusing carefully on how the technologies will actually address these goals and how they will provide learners with an effective learning experience, the mistakes of the past could easily be duplicated in a new guise.

I was concerned that my research was based on a sound learning theory since this was central to my overall thinking. Since my thoughts were turning towards the use of a virtual learning environment in my practice, I was eager to discover the pitfalls against the theory. Styles made the observation that some of the most serious errors have been errors of educational and course design and have included:

- Failure to engage the learner.
- Mistaking "interactivity" for engagement.
- Focussing on content rather than outcomes.
- Mirroring traditional didactic approaches on the technology.
- All the above are really all part of the same problem: namely, the adoption of view of learning as an information delivery process coupled with the practice of procedures (J. S. Brown and P. Duguid; 1996).

There is a wealth of published material on the undoubted value of computer-based discussion as a vehicle for learning. However, the author would argue that many VLEs place an over-emphasis on "discourse" at the expense of learners working together to produce some artefact. Also the question as to whether the same tools should be used for peer support and guidance as for discourse, or whether different solutions are required for best results, as yet remains unanswered.

Stiles (2000) also comments that coupled to this are issues of content design and creation. Often there has been an (understandable) desire to create content employing "rich" multi-media. This poses two immediate problems. Firstly, the effort and skills required to produce such content make it unrealistic in terms of both cost and development time as an approach to producing a significant body of content across higher education curricula. Secondly, higher education increasingly has as its learners a generation whose expectations of multi-media have been formed by the computer games industry and will be unimpressed even by relatively expensive multi-media educational content produced by commercial publishers. Therefore the use of multi-media should focus on its value in the learning context, rather than a desire to excite with its "richness".

3.1.1 What is Effective Learning?

Stiles (2000) argued that effective learning must also take place in the context of the acquisition of discipline or professional culture if both sets of knowledge and skills are to be of value to the individual in, and applied by them to, new scenarios and fields of study and employment. This argument is founded on a view of learning as an active process which must recognise, and take into consideration that:

- Learning is a social process and development is linked to the specific culture in which learning activities are shared (L. S. Vygotsky 1978).
- Learning activities need to be "authentic" - normal to the culture in question and involve its tools and artefacts (J. S. Brown, A. Collins, and P. Duguid 1989).
- Learning is situated in the dual contexts of culture and learning environment and that learning involves the interaction of learners and experts within them (J. Lave 1988).

- Enculturation involves the development by the learner of the use of culture-specific meaning making, or semiotic, tools (G. Wells 1993).
- Individual and social learning have a complex and necessary interdependence (G. Salomon and D. N. Perkins 1998).
- Expertise involves perceiving the relationship between specific and general knowledge and skills (P. A. Alexander, and J. E. Judy 1998).
- The need for both learning activity and assessment to be clearly related to syllabus and to reward understanding (N. Entwistle 1995).
- The need to match assessment, content and resources to the learner's current level (N. Entwistle 1995).

This view leads to an approach to course design that is output driven and focuses on the learning process and the effect it has on the learner, rather than an input led view that focuses on a body of content and its absorption by the learner (M.J. Stiles 2000).

Having researched the various concepts behind virtual learning environments, I needed to determine the evidence required to support my computer supported collaborative theory attached to this form of learning. As the concept of learning in this situation is one of a 'Process' rather than a 'Product' the evidence for learning would be the positioning and repositioning of pupils within the environment, the movement and feelings of increased self-esteem and confidence, rather than an end assessment mark.

3.1.2 An initial literary review

If I was to explore the use of a virtual Learning Environment (VLE) as a platform for learning with my students, I needed to find a way that would provide a suitable learning experience. I also needed to discover how this suitable environment should be constructed. It had to be suitable for the students and it had also to be suitable for me and any other staff involved.

The stimulation provided by Largey (2000) started my search for ideas, opportunities and explanations which could shed light on my actions now and in the future and help me construct a new learning experience. My initial thoughts were to examine relevant learning theories that I could use as the basis for learning within such a technological environment.

I was convinced that any learning environment and resultant pedagogy would be based on one or more theories of learning. I was looking for a theory of learning that would be capable of supporting my multimedia pedagogy within an interactive virtual learning environment. I wanted to find which learning theory or theories would allow the construction of such an environment that included multimedia content, world-wide communication links, CD ROM's, interactive software, authoring software as well as the radical change in the role of the teacher which must obviously follow.

In looking for sources providing theoretical insights into the learning process, I found an article by Mark K Smith (1999) and the following table taken from his article gives an excellent summary of the theories I explored.

- the behaviourist orientation to learning
- the cognitive orientation to learning
- the humanistic orientation to learning
- the social/situational orientation to learning

Aspect	*Behaviourist*	*Cognitive*	*Humanist*	*Social and situational*
Learning theorists	Thorndike, Pavlov, Watson, Guthrie, Hull, Tolman, Skinner	Koffka, Kohler, Lewin, Piaget, Ausubel, Bruner, Gagne	Maslow, Rogers	Bandura, Lave and Wenger, Salomon
View of the learning process	Change in behaviour	Internal mental process (including insight, information processing, memory, perception	A personal act to fulfil potential.	Interaction /observation in social contexts. Movement from the periphery to the centre of a community of practice
Locus of learning	Stimuli in external environment	Internal cognitive structuring	Affective and cognitive needs	Learning is in relationship between people and environment.
Purpose in education	Produce behavioural change in desired direction	Develop capacity and skills to learn better	Become self-actualized, autonomous	Full participation in communities of practice and utilization of resources
Educator's role	Arranges environment to elicit desired response	Structures content of learning activity	Facilitates development of the whole person	Works to establish communities of practice in which conversation and participation can occur.
Manifestations in adult learning	Behavioural objectives Competency - based education Skill development and training	Cognitive development Intelligence, learning and memory as function of age Learning how to learn	Andragogy Self-directed learning	Socialization Social participation Associationalism Conversation

Table 2 Four orientations to learning (after Merriam and Caffarella 1991: 138)

3.1.3 Behaviourism

It is generally agreed that John B. Watson was the first behaviourist. His theory argued that the inner experiences that were the focus of psychology could not be properly studied as they were not observable. His laboratory experimentation resulted in the generation of *the stimulus-response model* where the environment is seen as providing stimuli to which individuals develop responses.

Mark Smith (1999) stated that in essence three key assumptions underpin this view:

- Observable behaviour rather than internal thought processes are the focus of study. In particular, learning is manifested by a change in behaviour.
- The environment shapes one's behaviour; what one learns is determined by the elements in the environment, not by the individual learner.
- The principles of contiguity (how close in time two events must be for a bond to be formed) and reinforcement (any means of increasing the likelihood that an event will be repeated) are central to explaining the learning process (Merriam and Caffarella 1991: 126).

Smith went on to state that researchers like Edward L.Thorndike built upon these foundations and, in particular, developed a S-R (stimulus-response) theory of learning. Thorndike, according to Smith, noted that responses (or behaviours) were strengthened or weakened by the consequences of behaviour. This notion was refined by Skinner and is perhaps better known as operant conditioning - reinforcing what you want people to do again; ignoring or punishing what you want people to stop doing.

Smith also went on to observe that in terms of learning, according to James Hartley (1998), four key principles come to the fore:

- *Activity is important*. Learning is better when the learner is active rather than passive. ('Learning by doing' is to be applauded).
- *Repetition, generalization and discrimination are important notions*. Frequent practice - and practice in varied contexts - is necessary for learning to take place. Skills are not acquired without frequent practice.

- *Reinforcement is the cardinal motivator*. Positive reinforcers like rewards and successes are preferable to negative events like punishments and failures.
- *Learning is helped when objectives are clear.* Those who look to behaviourism in teaching will generally frame their activities by behavioural objectives e.g. 'By the end of this session participants will be able to...'. With this comes a concern with competencies and product approaches to curriculum**.**

I explored this 'behaviourist' view and felt that it mainly focused upon measurable and observable behaviour that occurred in response to a set of observable conditions or stimuli. I could relate this to the old teaching machines of 'drill and practice'. I was not convinced however, that his model was particularly relevant to my aspirations for a virtual learning environment. However I could not discard Skinner's theory as inadequate for the learning of low-level specific facts and motor skills. Software that simply addressed the learning of these skills and facts could be based upon the behaviourist theories of learning.

3.1.4 Cognitive

It is obvious that not all learning can be attributed to classical and operant conditioning. It could be argued that learning would be very ineffective if we relied solely on conditioning. Human beings can learn in a variety of ways; by observation, taking instruction, and imitating the behaviour of others. It is highly unlikely that we could explain what one is learning from reading by means of a conditioning approach. Cognitive learning however does offer a powerful means for acquiring knowledge, and goes well beyond simple imitation of others. One could define cognitive learning as the acquisition of knowledge and skill by mental or cognitive processes. These cognitive processes include creating mental representations of physical objects and events, and other forms of information processing (Ormrod, J.E.;1999).

In cognitive learning, the individual learns by listening, watching, touching, reading, or experiencing and then processing and remembering the information. Is cognitive learning passive learning? It could be argued that the learner is quite active, in a cognitive way, in processing and remembering newly incoming information.

According to Atherton J S (2011), cognitive learning enables us to create and transmit a complex culture that includes symbols, values, beliefs and norms.

Atherton (2011) also makes the comment that Jean Piaget studied the development of children's understanding, through observing them and talking and listening to them while they worked on exercises he set. Piaget's view of how children's minds work and develop has been enormously influential in educational theory. His particular insight was the role of maturation in children's increasing capacity to understand their world: they cannot undertake certain tasks until they are psychologically mature enough to do so.

Atherton (2011) states in his article that Piaget proposed that children's thinking does not develop entirely smoothly: instead, there are certain points at which it "takes off" and moves into completely new areas and capabilities. Piaget saw these transitions as taking place at about 18 months, 7 years and 11 or 12 years. This has been taken to mean that before these ages children are not capable (no matter how bright) of understanding things in certain ways, and has been used as the basis for scheduling the school curriculum. Whether or not it should be the case is a different matter. (Atherton, 2011).

The nature of Piaget's cognitive development is captured in the term Constructivism. The 'constructivist' perspective runs through from Piaget to Bruner and beyond; the basis being that, children are actively constructing their understanding of the world. In some respects this view was attractive view to me. Wood (1989) warned us not to attribute to instruction that "which is properly an achievement of the child".

The concepts of discovery, interaction and reflection appealed to me. Could my use of a virtual learning environment support many of these concepts for the students? I wondered whether it was possible to provide an environment that allowed students to interact with the material, each other and the facilitator in order to provide a new and effective learning experience. Draper and Anderson (1991) concept of "knowledge construction" offered a change from the curriculum to the student. The learner had become a constructor of knowledge.
In other words, the learner had become "An autonomous learner which met cognitive skills for controlling his/her cognitive processes during learning" (Draper and Anderson, 1991).

It was concluded that this classic approach to constructivism did not seem to fit what I was looking for. I was looking for a theory that would include the social or human side of learning. Largey (2000) pointed out that Papert (1980) employed the concept of 'concrete' when developing his particular type of educational software.

He developed Logo programming and the Floor Turtle that he hoped would provide young learners with the necessary tools to construct new understandings in areas such as mathematics and physics and claimed it was an attempt to return to the concrete stage. Largey (2000) also commented that Papert developed the concept of a Micro world being available for the learner. This Micro world was a place where the learner encountered all those aspects of a subject and could interact, change and explore at will. Papert believed that if you wanted to learn French that it would be good to go to France and if you wanted to learn mathematics then it would be equally as good to go to Mathsland, (a Micro world). Maybe my idea of using a VLE fell into the realms of a technological Micro world?

Largey (2000) stated that according to Papert's work, there must be changes in all aspects of the educational environment, such as the role of the teacher, the resources, the use of computers and changes in pedagogy. This approach inspired me to consider how a VLE was to be used as the platform for learning and how students accessed it and what resources were available.

I was however somewhat uneasy with Piaget's constructivism and even Papert's Logo. I was now leaning more to the social nature of learning. Donaldson (1978) and Cole (1996) both intimated that there is little reference in Piaget's account to social factors and therefore I needed to explore further learning theories regarding this social aspect. I seemed to be looking for a communicative theory of learning, one where communication between participants, students and teachers, was more acceptable. I wanted to explore how the teacher's role changed during the learning experience.

3.1.5 Socio-culturism

Vygotsky's socio-cultural theory, according to Elizabeth Grace (2010) (http://www.kidsdevelopment.co.uk/VygotskySocioCulturalTheory.html) is very much in the foreground of educationalists trying to get the best from their students. Vygoysky's (1978) stated that social interaction leads not only to increased levels of knowledge, but that it actually changes a child's thoughts and behaviours.

The basis of the theory is that the more social exposure a child has to various cultures, then, their knowledge would expand. Developmental advancements, dependent upon the people and the cultural tools provided to the child, will help him to form his perceptions of the world. Grace (2010) makes the observation that Vygotsky's theory suggests that there are three ways in which learning is passed along to an individual.

- Imitative learning, where the child simply copies another person.
- Instructed learning, where a child recalls direction given by a teacher and then puts it into play, and
- Collaborative learning. Which happens when a peer group cooperates to learn or achieve a specific goal while working to understand one another?

Grace (2012) made a very interesting comment on how children understand things. She stated that children, especially toddlers and pre-schoolers, often speak aloud to themselves as they are trying to understand something. This self-talk helps them to work things out in their own minds. She commented that Vygotsky believed this "private speech" lessens with age until it becomes all but non-existent. It's not that older children (and adults) don't have the need to think things through, but in Vygotsky's observation, he felt that they do this on an internal level -- thinking, but not necessarily voicing their thought processes. Grace (2010) went on to observe that Vygotsky believed that learning begins at birth and continues throughout all of life. One of the most important ways that advancements in development are achieved is through what Vygotsky called "the zone of proximal development." (ZPD).

Vygotsky (1978) described ZPD as:

> "...*the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers*."

Grace (2010) expanded this idea by stating that teachers and other educators who wish to utilise the benefits of ZPD often employ one of two strategies:

- *Scaffolding*: Scaffolding requires that an instructor shows by example how to solve a problem, while controlling the learning environment so that students can take things step by step, expanding their base of knowledge without excessive frustration.
- *Reciprocal Teaching*: A highly successful teaching method, reciprocal teaching provides an environment of open dialogue between student and teacher which goes beyond a simple question and answer session.
- By alternating turns leading discussions, students soon find themselves capable of assuming a leadership and instructional role.

Grace goes on to state that believers in Vygotsky's theories would advise parents to expose their children to a variety of social situations, since each interaction is considered a learning experience. She states that it is especially important to introduce children to people and ideas that operate above their current knowledge level, giving them access to new ideas and concepts. Guiding children to look for answers by imitating what they see in others, listening to instruction and working as part of a group all provide opportunities for them to expand their current base of knowledge. Grace concludes that if Vygotsky is correct and development continues until death, parents themselves may wish to look for opportunities to keep on learning and growing.

It appeared that Socio-cultural theory was placing intellectual development between or outside people before the development happened in the person.
It seemed to suggest to me that we learn in dialogue between each other. These particular suggestions appealed to me, as I was able to envisage these interactions as being central to a new learning environment.

I saw this concept of an environment as being able to provide the stimulus and the opportunity for such interactions to happen, hopefully with the opportunity for intellectual development occurring this way. My research led me to the concept of "Computer Supported Collaborative Learning" and this looked ideal for my intended project.

3.1.6 Computer Supported Collaborative Learning

Computer supported collaborative learning (CSCL) has grown out of wider research into computer supported collaborative work (CSCW) and collaborative learning. CSCW is defined as a computer-based network system that supports group work in a common task and provides a shared interface for groups to work with (Ellis et al. 1991). Collaborative learning is defined as groups working together for a common purpose (Resta, 1995).

The differences between CSCW and CSCL are that CSCW tends to focus on communication techniques themselves, and CSCL focuses on what is being communicated; CSCW is used mainly in the business setting, CSCL is used in the educational setting; the purpose of CSCW is to facilitate group communication and productivity, and the purpose of CSCL is to scaffold or support students in learning together effectively. They both are based on the promise that computer supported systems can support and facilitate group process and group dynamics in ways that are not achievable by face-to-face, but they are not designed to replace face-to-face communication.

CSCL and CSCW systems typically tailored for use by multiple learners working at the same workstation or across networked machines. These systems can support communicating ideas and information, accessing information and documents, and providing feedback on problem-solving activities. The research of CSCL and CSCW covers not only the techniques of the groupware but also their social, psychological, organizational, and learning effects.

Many theories contribute to our understanding of computer supported collaborative learning. These theories are socio-cultural theory (based on Vygotsky's inter-subjectiveness and Zone of Proximal Development), constructivism theory, self-regulation learning (skill, will, and execute control), situated cognition, cognitive apprenticeship, problem-based learning (Cognition and Technology Group at Vanderbilt), Spiro et al.'s (1988, 1991) cognitive flexibility theory, and Salomon et al.'s (1993) distributed cognition ("effect of" and "effect with" technology). These theories are based on the same underlying assumptions that individuals are active agents that they are purposefully seeking and constructing knowledge within a meaningful context.

CSCL aims at providing both an authentic environment and multiperspectives that can tie in students' prior knowledge. Computer supported systems are cognitive tools that can team individuals with the technology to form a joint intelligence which shares the labour during the group process. To solve the problem of the limited human working memory (7+-2), CSCL can function as scaffolder to provide resources and modify individuals' cognitive ability.

Pea (1985) mentions that computer also can off-load part of cognitive process, such as modelling how to find information, so individuals can focus cognitive resources elsewhere. In principle, individuals will develop the cognitive skills necessary to accomplish many of the cognitive process that are demonstrated in the partnership (the "effect with" technology).

An explicit goal of the CSCL environment is to facilitate deep understanding. Though each CSCL software may have different functions, one general characteristic is to promote reflection and inquiry that assist the in-depth learning. This latter concept appeared to suit my research methodology for developing a new virtual learning environment.

3.1.7 Summary

I was looking for a learning theory or a teaching-and-learning theory that would allow me to create a learning environment, which fitted in with a fast changing outside world.

Daggert (1992) said "The world our kids are going to live in is changing four times faster than our schools". Perhaps the factor of four he suggests has now been superseded.

My view was that the computer was capable of offering much more than their original utilisation suggested and I wanted to discover how to make use of them properly. I began to perceive that one could use these machines in a different way.

In addition it was felt that there would be a need for changes in organisation, funding, time allocation, changes in the educational debate within college, and many others. Illich (1983) said that the principal lesson school teaches is the need to be taught. It creates a dependence on school and a superstitious belief in its methods. The vision was to develop a learning environment where students could learn in a social dimension with collaborative aspects, then. All that was needed to be done was to find the environment appropriate to my theories.

An underlying theory of learning that could be used to incorporate the computer into the classroom was required. A learning theory that would allow the use the computers differently was desirable. The computer was not to simply do the same things that have always been done in the classroom. It was not considered feasible that the computer be bolted onto the environment, to be used as reward and be withheld as punishment, (used to control). I ended up with not just a theory of learning but more with a theory of teaching-and-learning. It was the computer supported collaborative learning theory on which I would base my environment.

There was one more area to resolve and that was what collaborative software would be used within the environment, what it would be like, what would it be called, why would I use it and more importantly how would the study use it. I now set out to find the answers to these questions before I could finally start to create the environment.

3.2 Virtual and Managed Learning Environments

Virtual learning environments have represented an entirely new form of educational technology. They offer the educational institutions of the world a complex set of opportunities and challenges. For the purposes of this report I will define a virtual learning environment to be an interactive educational computer program with an integrated communication capability. An example of a virtual learning environment is a package, which supports learners as they work with content and makes it possible for them to send material to other students and tutors, and to receive similar information back from them, either while they are working or later. It is the combination of individualised adaptive interaction with communication on demand that provides the unique form of support for the learner. A classroom or a library is an example of a real learning environment, and a computer program, which supports a non-trivial scientific simulation, can be considered to be an interactive learning environment. A virtual learning environment may support similar forms of learning to a 'real' one but it is not a physical space like a classroom or lecture theatre, and learners may work closely together while not being active at the same time. In addition to having a different relation to space and time, a virtual learning environment will also be different from a real one with respect to memory. Virtual learning environments are realised with computer technology, and can thus be designed to have their own memory of what the learner or group of learners have been doing.

Virtual learning environments are a relatively recent development and they arise from the convergence of computer and communication technologies that has accelerated over the last ten years. The educational community has only recently begun to think through the possibilities for learning environments that are not restricted to particular places and times and that can remember past events. But associated with the possibilities are some very serious challenges and concerns. In particular on how these developments might change the role of the teacher.

Up to now, the implications of recent developments in information and communications technology for teachers and teaching have probably not received the attention that they merit.

The traditional mode of contact between teacher and learner, at least that on which the world's formal education systems have been largely constructed, has been face to face in the classroom. Modern information and communications

technology challenges the traditional teacher-class relationship, in particular the necessity for face to face contact. There is another reason too: the design of virtual learning environments is surely a pedagogical or teaching activity. We are beginning to witness, it seems, the emergence of a new class of teachers: people who are never seen at all, even at a distance, by learners, yet who essentially determine how learners are going to go about their learning tasks. On what pedagogical principles do these 'virtual' teachers design the new learning environments? What are the pedagogical and technological design issues? It was these questions that prompted me to explore this approach to a new learning environment.

3.2.1 The Changing Role of the Teacher

The introduction of a virtual learning environment into any formal educational setting such as a classroom or timetabled course immediately changes the role of the teacher (O'Shea ; 1997). The students become able to alter radically their pattern of working and learning with respect to both when they work and whom they learn with. Consider the extreme but authentic example of a pupil who used to do geography group project work between ten and eleven on Monday mornings at a particular table with three other designated pupils. Given access to appropriate conferencing software, the same pupil can work collaboratively with three pupils in other schools in their country on a geography project, and this physically distributed group of learners can use electronic mail and the Internet to get material for their project from peers of their age group who live in the country they are doing their project on. This offered a dramatic change to a students learning experience. The timing of the project activity now depends on access to hardware rather than the timetabled use of classroom space.

If the pupils are in a hardware rich school or have access to networked computers in their homes then the timetabling issue moves to ensuring the right amount of time is devoted over the week or month to the group project. If a school with limited hardware introduces such a project activity then, of course, access to the hardware will have to be timetabled. In either case the role of the teacher will change very considerably with some current aspects of the teacher's role vanishing and new demands on the teacher appearing.

As O’Shea points out, the two key classes of activity that will diminish or vanish relate to the teacher no longer acting as the main information and knowledge source and no longer having responsibility for the detail of how pupils spend their time. Currently, there is an expectation that teachers should be 'oracles', have fairly complete personal mastery of what is being taught, and should be able to guide pupils on how to spend their time hour by hour on a ten minute basis. But the pupil using virtual learning environments has access to a diversity of knowledge sources and ways of easily tracking individual and group learning progress. Two new teaching roles are required instead. These are the role of learning guide and the role of curriculum designer. Schools and colleges will also have to make choices about investment in hardware, and more particularly software, products and teachers will have to evaluate the offerings of the market with respect to the curriculum goals of their institutions.

One other consideration was evident during my research into Virtual Learning Environments. The development of usable virtual learning environments usually requires a mix of skills from a range of disciplines including computer science, cognitive psychology, instructional design, artificial intelligence, human computer interaction, educational technology and expertise in the subject being taught. Certainly some teachers will join the teams that extend the curriculum through producing new virtual learning environments. The particular roles they are most likely to play in such teams are those of subject matter expert and classroom evaluator. But the idea that in the future there might be easy to use authoring tools, which require no technical expertise of teachers, is questionable. The marshalling of multi-media resources to support a wide variety of learning routes is much more complex than textbook design.

This forces the conclusion that non-trivial new virtual learning environments will continue to require the investment of a range of multi-disciplinary skills. The role of the teacher will be changing as the various forms of integration discussed above proceed. Teachers who adopt the new role of learning guide will have to deal with a new status which is yet to be determined and in some important respects they will become peers with their students and pupils.

3.2.2 The Virtual Learning Classroom

Current educational virtual environments are large and extensive and can be difficult to define as they are constantly changing and evolving. They often range in the level of interactivity they offer and the variety of services they provide. If we consider virtual schools, we can possibly make a division into three possible broad categories: independent, collaborate and broadcast (Russel, 2001):

- Independent models can often be referred to as “asynchronous” because they do not rely upon direct communication between teachers and students, as they do not avail of chat or videoconferencing facilities. Students access and interact with materials at their convenience and so the learning structure is considered unscheduled.
- Synchronous models usually involve more communication and collaboration through videoconferencing and live chats so there are more opportunities for socializing. As online meetings are usually scheduled there is limited flexibility.
- Broadcast models allow students to access lectures or broadcasts on the Internet and so interaction is often limited.

These different models give an example of the wide range of learning flexibility offered by these virtual environments that serve the individual needs and are regardless of age, gender, religion, nationality or disability. It is therefore not surprising that we have witnessed such a move towards interactive learning in such virtual environments. This has consequently given rise to debate over the future of the traditional classroom in a digital economy.

Some critics believe that the traditional classroom will become out-dated as the demand for flexibility and distance learning increases, while others believe in its longevity as a communicative learning medium.
Such debate is fuelled by surveys, such as the study at the California State University at Northridge, which claimed that students learning in a virtual classroom tested 20 per cent, better across the board than their fellow students in a traditional classroom (Schutte, 1997).

As many traditional educational institutions are coming under pressure to join the virtual realm, Glenn Russell (Russell, 2001) highlights the important point that

'virtual schools may be promoted due the self-interest of the economist, bureaucrat, or on-line entrepreneur, rather than on the evidence of educational research or merit. Wayne Galloway, Sarah Boland & Adela Benesova (2002) stated that with the thousands of schools and universities now operating online, it is becoming increasingly difficult to distinguish and judge their academic virtue and the quality of education may become compromised under commercial pressure. But while it is unlikely that the virtual classroom will replace the traditional classroom, as an educational medium completely, there is no doubt that interactive learning in virtual environments will become more common as the technology advances. This view was interesting and began to enhance my thoughts on how I could develop a more effective learning environment. What were the potential problems? How could I transfer or incorporate the traditional classroom in my thinking?

3.2.3 Transferring the Traditional Classroom to the Virtual Environment

In a physical classroom there is a standard set of equipment and tools, this usually includes audio-visual equipment such as textbooks, a chalkboard, video player, and tape recorder. Virtual environments need equivalent equipment and tools in the form of network-based software application to allow a group of instructors and students to carry out the learning process. The sophistication of such software structures vary widely, from simple electronic mail systems to systems that have been specially enhanced to support classroom-like experiences, such as virtual auditoriums.

Despite all the exciting concepts around virtual learning environments, creation of software systems for supporting virtual education is still problematic. The same functionality must be available for all popular user platforms (the absolute minimum is the Macintosh and Microsoft Windows systems).
Bandwidth limitations also must be considered as to limit participation to those users with the best Internet access and hardware equipment is unacceptable.

Another problem is lack of standards because ‘just as html has provided a standard which allows participation by users with diverse implementations of both low-end and high-end browsers, audio-visual tools require similar standardization’. (Turoff, 1995). The specific issue is the design of the virtual classroom and above

all the integration of the components into a single interface that is easy for students to learn and use.

3.2.4 Summary

Virtual learning environments are a reality but there are some considerations to be addressed: technological developments, pedagogical approaches and the changing role of the teacher. With respect to the technology, there appears to be a continuing integration of information and communication technologies, the integration of synchronous and asynchronous modes of use and the integration of tools for searching through and constructing libraries of digital learning materials. The pedagogical approach is to view learning as a constructive cognitive activity that must be understood in relation to its social and cultural setting.

In applying such a constructivist approach to using technology the best way forward is to build and test rather than theorise about innovative virtual learning environments. The role of the teacher will change as technology integration take place. There will be some continuity of current teaching functions with respect to assessment and resource allocation and, as at present, a small number of teachers will become involved in the creation of new learning materials for the mass market.

O'Shea feels that the focus should be on the fifteen different special properties of the new approaches, such as support for visualisation and reflection. In this way the new technologies can be used to enhance and improve the learning of pupils and students around the world. He feels also that the continued development of virtual learning environments can and will make key contributions to the vital international goals of high quality learning on demand combined with greatly increased educational access.

The future of virtual learning environments has many innovative and exciting possibilities. New networks can allow students more opportunities way beyond those offered by the Web in its current state but careful planning and innovation will be required to ensure that the potential for the scope of delivery is reached. The importance of mobility should also be considered so that learning can take place in the most appropriate context.

If issues of cost and programming were resolved students would be given access to the range of additional hardware and software required.

Only when learning environments, and those involved within them, are fully responsive to the needs of students will optimal levels of progress take place. For most students this will involve a judicious blend of both traditional and virtual learning environments.

3.3 Computer Supported Intentional Learning Environments

Society in general is constantly changing and adapting to each new invention or change that occurs. This change must happen inside education as well. Commentators such as Dewey (1961) remarked that:

> "Particularly it is true that a society which not only changes but has the ideal of such change as will improve it will have different standards and methods of education from one which aims simply at the perpetuation of its own custom."

Our society has an ideal of change but these changes in our educational establishments can be difficult to see. The quickly changing world suggests a real need for change within schools and colleges.

3.3.1 The Computer Revolution

The computer, it appears, has brought another revolution with similar problems to previous revolutions, mainly the struggle of society to adapt and accept. Most people are reluctant to take on the latest inventions in technology preferring to rely upon ones with which they are familiar, are used to and rely upon; but eventually they do. Many of us still rely on the tools of our parent's society and even our parents' parents' society. The computer revolution however continues, and, after the hesitancy of some and the non-acceptance of others, it is now in full flood, the new technologies are being used and society continues to develop. Perhaps this particular revolution has been more acceptable to the young than any other as the computer has been described as "The Children's Machine" (Papert 1993).

Did the educational establishments with all its defence mechanisms and its immune systems subvert the impact of the computer in the learning environment? Has the teaching profession also democratically subverted the radical potential of

the computer? Recognising this need for change in line with outside society led to the development of my thoughts about virtual learning environments within which it was hoped that the computer could have the potential to create a real socio-cultural learning environment which could be nearer to the concrete experiential and situated learning environment that students come from at an early age.

It was hoped that this would be a different learning environment that would start slowly and grow in an organic way. It involved the growth of a very different culture of learning, a learning environment that may include a different literature and with different ways of thinking about what is to be learned and how to learn it. It would be a different school or college? It was hoped that the virtual learning environment would provide a very powerful strategy to allow the operation of the principle of variation and selection which it needed within our Learnwise Educational system.

3.3.2 Computer Supported Intentional Learning Environments (CSILE)

CSILE is an educational knowledge media system, developed by Scardamalia & Bereiter at Ontario Institute for Studies in Education. This system is designed to support students in purposeful, intentional, and collaborative learning, in a local network environment. Students can select different communication modes (text, video, audio and animation) to generate "nodes". These nodes contain ideas or information that related to the topic under study. Nodes are available for others to comment on, leading to dialogues, and an accumulation of knowledge. A series of research has been conducted across different curricula in these environments. The body of CSILE research presents the most complete view to date of the educational potential of LAN for support collaborative learning (Breiter & Scardamalia, 1984, 1987, 1989, 1992, in press).

CSILE is based on Zimmerman's (1989) self-regulated learning (CSILE term is intentional learning) and constructivists' view of learning. It emphasises on building a classroom culture supportive of active knowledge construction that can extend individual intentional learning to the group level. The purpose is to make students think and reflect their thought process, which provoke question asking and answering in a public forum.

The ultimate goal is to get students involved in knowledge itself rather than improve one's mind, a World 3 view, which shifts from individual mastery learning to improve the quality of public collective knowledge (Scardamalia, et al., 1994).

3.3.3 The Tools of Computer Supported Collaborative Learning

Computer-supported systems are often categorised according to the time/location matrix: synchronous (same time) vs. asynchronous (different times), and face-to-face (same place) vs. remote (different places). Synchronous tools support the simultaneous interaction among group members, for example, videoconferencing. Asynchronous tools support individual work alone to contribute group process. E-mail is an example of asynchronous tool.

3.3.4 Research Findings

The results of my literature search and own practice has provided the following findings of various computer supported collaborative learning:

- Research evidence suggests that a combination of group rewards and strategy training produces much better outcomes than either one alone (Fantuzzo et al., 1992).
- The results of ACOT's two years (1986-87) study of seven classrooms that represented a cross section of America's K-12 schools are promising. Teachers are able to translate traditional text-based instructional approaches to the new electronic medium. Student deportment and attendance improved across all sites, their attitude towards self and learning showed improvement as well. In terms of test scores, at the very least, students are doing as well as they might without all of the technology and some are clearly performing better (Apple Research Labs Publications).
- Sherry and Myers (1996) study of group dynamics of graduate students collaboratively designed WWW process. They confirm Scardamalia, et al's. (1994) "World 3" view that the group becomes a self-reflective, and self-organizing system that each member contributes her own expertise and, in turn, learning new skills and extending the group knowledge base.
- Study shows that the more skilled teacher participates with the technology, the more positive attitudes they have developed toward technology (Zhao & Compbell, 1995).

- There is substantial evidence that students working in groups can master science and mathematics materials better than students working alone (Slavin, 1989).
- King (1989) observes verbal interaction and problem solving behaviour of small collaborative peer groups working on CAI tasks. He found successful group involved in more task talks than social talks. They ask more task related questions, spend more time on strategies use, and obtain higher elaboration scores than did unsuccessful groups.
- Weir (1992) indicated that both teachers and researchers find that students who work together on "real world problems show increased motivation, deeper understanding of the concept and an increased willingness to tackle difficult questions that they cannot answer alone." This focus on authenticity and experiential learning is reiterated in numerous articles.
- A series of CSILE studies conducted by Scardamalia and Breiter, indicated that students gain deeper understanding and collaboratively construct knowledge while working in CSILE environments.
- CSCL environment can accommodate a larger group size increases idea generation and decision-making. The ideal size of face-to-face group is four.
- The role of the teacher will shift from primary source of knowledge to that of expertise in learning. A good teacher should be an expert learner, who can facilitate students' learning and information searching (Riel, 1994).

3.4 Summary

Educators increasingly provide computer-supported tools to collaborative groups of students. My literature review and pilot study have provided the opportunity for the exploration of collaborative approaches and aided my approach to the doctorial projects. I needed to develop a strategy to investigate a range of questions:

- How cans education shift from individual, technology-free cognition to a resourceful collaborative learning, and distributed intelligence. Learners should be empowered through thoughtful use of technologies as well as through innovative use of technologies, and benefit from social distributions of cognitions. I agreed with Salomon et al.'s comments (1991) that education should pay more attention to the "effects of" technology rather

than the "effects with" technology, so that autonomous performance may be achieved[22].

- Scaradamalia et al. (1989) argued that it should be students not the computers to solve problems, make planning, and set the learning goals. The role of computers should be to promote and facilitate learners to maximise use of their intelligence and knowledge.
- In other words, the intellectual tools design should focus on Salomon's suggestion to provide quality scaffolding that entails metacognitive guidance to facilitate students learning how to learn (the "effect of" technology), rather than off-loading and task dividing that try to ease students' cognitive burden (the "effect with" technology). The idea of distributed cognition is relatively new yet crucial.
- The attempt of this part of the research was to investigate self-regulated (metacognitive) strategy use in a computer supported collaborative learning environment; to see whether this kind of higher-order knowledge can be distributed among peer and environment[23].

[22] Supp. Mat 3 (3)
[23] Supp. Mat. 3 (6), (7), (8), (9)

Chapter 4: Research Methodology

4.1 Overall approach

This research has involved a range of primary and secondary source data collection originally conceived from a re-analysis of a Becta study on the use of ICT in teaching and learning (Becta, 2004). These techniques have involved:

- Questionnaire and surveys
- Action Research
- Interviews

Secondary sources through literature reviews have been used to support the issues raised during the research process.

Initial investigation of ICT training and technical skills in an FE College shown in supporting material 3 (1) arose from concepts derived out of previous research by Galanouli D, et al (2004). This has shown that, until recently, the majority of courses offered in the UK to train teachers in the uses of ICT have focused on the technical aspects of ICT with little training about the pedagogical practices required and the incorporation of ICT in the curriculum. Galanouli also indicated that in many ICT professional development courses, teachers are not often taught how to revise their pedagogical practices, how to replace other traditional lessons without depleting the curriculum coverage and so on. This implies that after teachers had attended a course they still did not know how to use ICT for teaching pupils. As a consequence the first published paper hoped to determine if a similar issue still related to Further Education (FE) lecturers and that most teachers were reluctant or unable to integrate ICT into their practice due to technical barriers.

My **initial approach** involved the exploration and analysis of texts that formed part of the Becta research carried out in August 2003 and updated in January 2004. Most of these texts report experiences in the UK and the United States, but evidence was also included in the Becta review from Australia, Canada, Denmark, France, Greece, Israel and the Netherlands. The Becta sources dealt with a wide range of cultural and organisational contexts, covering teachers and schools at different points in the introduction of ICT and were published over a ten-year period which means that the technological context also varied significantly.

Having established the perceived issues surrounding the barriers (i.e. Lack of time, poor access to resources, confidence, and resistance to change) the researcher surveyed some 150 college staff regarding their ICT skills and current practice within a vocational FE college environment.

The method of analysis used was firstly to review the Becta and other texts as follows:

> Cox, M., Preston, C., Cox, C. (1999). What factors support or prevent teachers from using ICT in the primary classroom. Paper presented at the British Educational Research Association Annual Conference. University of Sussex at Brighton. (September 2-5 1999). http://www.leeds.ac.uk/educol/documents/00001304.htm.
>
> Cox, M. J. and Webb, M. E. (Eds) (2004), ICT and Pedagogy – *A Review of the Research Literature.* Coventry: Becta /London: DfES.
>
> Galanouli D, Murphy C, Gardner J, (2004) Teachers' perception of the effectiveness of ICT Competence training Computers & Education**,** Volume 43 , Issue 1-2 Pages: 63 – 79.

This helped conceptualise what was involved in enabling successful use of ICT, and secondly to examine specific recommendations about, or illustrations of, ways of achieving this. Once a model of current practice had emerged, the researcher explored how this compared to experiences in the Further Education College. Statistical results are included within the body of the contribution and a discussion of these findings with recommendations of potential solutions and a recommendation for a college ICT strategy. (Supporting Material 3 (1))

The **second stage** involved the review of texts that would indicate best practice in the use of social software tools such as wikis.

Ferris, S., and H. Wilder. (2006) observed that it was interesting that even though we had entered a new digital age, it has had a slow rate of impact on teaching given the unprecedented and dramatic impact of these technologies on society and industry. How did this relate to an average FE College?

In order to determine some benchmark of ICT activity in the college, a survey of some 150 staff regarding their ICT skills and current practice within a vocational FE college was undertaken[24]. Once a model of current practice had emerged, an action research study was undertaken to determine how effective the use of wikis would be within specific groups of FE students[25].

The **third stage** formed part of an on-going investigation into the use of Web 2.0 technology within the teaching and learning environment. The investigation[26] was hopefully going to form part of a strategy to develop new ways of delivering programmes across the campus. This study involved some 40 students on two separate courses. One was a Media programme and the other a Foundation Degree. The control group consisted of 18 IT Practitioner students. Students and staff had access to both the VLE and a range of Web 2.0 tools.

4.2 Methods

4.2.1 Action Research Methodology

My main basis for research was built around the concept of Action Research. According to the Learning Skills Development Agency, action research has a strong tradition in education and holds the potential of being able to extend and expand practice. It has close links to grounded theory (Strauss and Corbin 1990) and utilises similar approaches being that it is grounded in the values (Lomax 1994) of those undertaking the research. It is a persuasive vehicle for developing and improving practice and knowledge surrounding a particular issue and of those working within its sphere of concern. It is an 'intervention *in the …real world and a close examination of the effects of such intervention'* (Cohen et al, 2000).

[24] Supp. Mat. 3 (1), (4), (14)
[25] Supp. Mat. 3 (2)
[26] Supp. Mat. 3 (3)

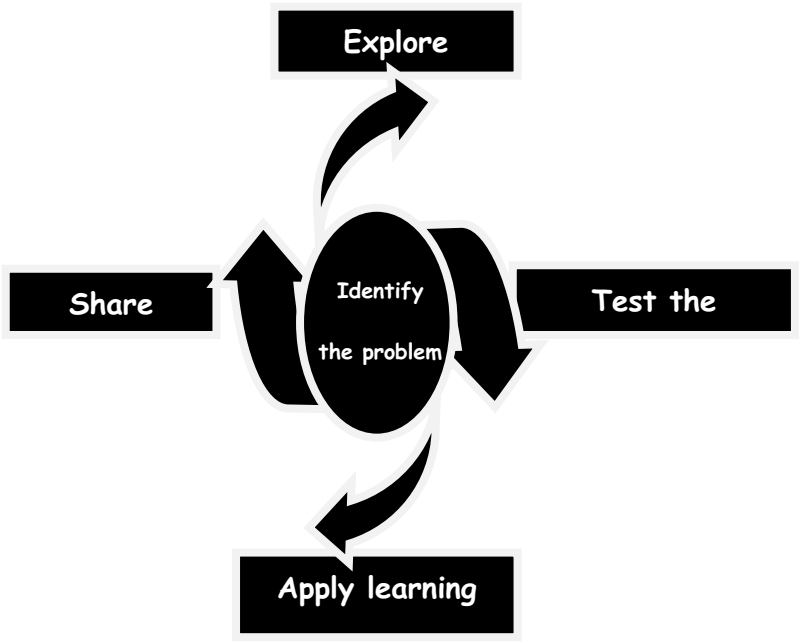

Figure 1: Improving practice

Action research is a *'form of self-reflective enquiry undertaken by participants … to improve the rationality and justice of their own practices'* (Carr & Kemmis 1986:162).

The rationale for adopting this approach is that it is able to bridge *'the divide between research and practice'* by taking as its starting point *'practical questions arising from concerns in … everyday work'* (Somekh 1995:340). As such, action research is a vehicle accessible by practitioners to improve their practice.

4.2.2 Case Study Methodology

A case study method was considered to allow the author to observe the environment and its constituent parts, such as the student, class, environment, technology, layout, rules, expectations, attitudes, the socio-cultural tenets, learning, etc. According to Cohen and Manion (1995) a case study should consist of observations, notes, and diaries and be in an historical format that will tell the story as it unfolds. The observations will be concerned with the 'life cycle' of the units involved and will allow deep probing and deep analysis of the conditions, the units themselves and the phenomena that exist within the Little School. The Case Study should if possible allow generalisations about the wider population. The technique is widely used in present day social science and educational research. It will involve a wide and diverse range of methods of data collection and qualitative analysis.

However irrespective of what particular technique or method is used there is unquestionably one thing at the heart of the Case Study and that is "Observation".

4.2.3 Observation Methodology

Many advantages of observational methods are cited. It is good for collecting non-verbal behaviour. Observers are able to discern ongoing behaviour as it occurs. They are able to make appropriate notes about the salient features as they take place over an extended period of time. More intimate and informal relationships can be generated between the observer and those being observed. Observational techniques are less reactive than other types of data gathering methods.

Critics of these methods of observation however describe them as potentially subjective, biased, impressionistic, idiosyncratic and lacking in the precise quantifiable measures that are the hallmark of survey research and experimentation.

4.2.4 Questionnaires and Surveys

Between 2007/09, a range of surveys were carried out to determine the extent that ICT and VLEs were used within teaching and learning. This approach was a review of how staff embraced the use of Web 2.0 tools and how the use of such technologies could be further developed. Having determined a broad understanding of the use of ICT within the institution, it was necessary to explore how tutors could enhance their practice using some of the latest tools available in the form of Web 2.0 technology.

Two programmes were selected to investigate. Tutors on these programmes were enthusiastic about using new approaches and it was felt that a comparison to other areas not engaging with such techniques would provide some insight into the way forward. The two groups selected consisted of a media class of 21 school children aged 14-16 studying a range of media applications (animation, web design and movie making). The other group consisted of 15 Foundation degree students studying Chemical Technology. Both groups were given support in setting up VLE (Blackboard) material and Web 2.0 tools as appropriate.

The control group for the study consisted of 18 students on a first year IT Practitioner's programme. Feedback from students and staff was collated during the study and at the end.

Analysis of VLE access activities would provide data on how students related to their learning environment and coupled with relevant feedback on their learning experience would provide some indication of how students were interacting with the technology available.

4.2.5 Ethics

The basis of ethics conducted in this research followed the Teesside University Governance policy procedures and guidelines for research ethics.[27] Approval from the appropriate ethics committee was duly obtained. To summarise; my research was conducted with respect for the welfare of all persons who might suffer detriment, or benefit from or be otherwise affected by the research and its dissemination, including individual participants and the systems and organisations in which they function.

4.2.6 Summary

Stiles (2000) stated that the prime focus of the enthusiasm for distributed learning is the technology itself. Without focusing carefully on how the technologies will actually address goals and how they will provide learners with an effective learning experience, the mistakes of the past could easily be duplicated in a new guise.

I was concerned that my research was based on a sound learning theory since this was central to my overall thinking. Since my thoughts were turning towards the use of a virtual learning environment in my practice, I was eager to discover the pitfalls against the theory. Stiles also made the observation that some of the most serious errors have been errors of educational and course design and I was eager not to replicate these.

Further and higher education increasingly has as its learners a generation whose expectations of multi-media have been formed by the computer games industry and will be unimpressed even by relatively expensive multi-media educational content produced by commercial publishers. Therefore the use of multi-media should focus on its value in the learning context, rather than a desire to excite with its "richness".

[27] Ethical policy: http://www.tees.ac.uk/docs/DocRepo/Research/ethics.pdf

In addition, I was concerned about the concept of effective learning. Stiles (2000) argued that effective learning must also take place in the context of the acquisition of discipline or professional culture if both sets of knowledge and skills are to be of value to the individual in, and applied by them to, new scenarios and fields of study and employment.

This argument is founded on a view of learning as an active process. I could see that the research methodology that I had already been using, albeit in a largely intuitive way, in my early explorations of virtual learning environments, could in retrospect be considered more interpretive than normative. My main basis for research was built around the concept of Action Research.

In addition to the above, a case study method was considered to allow the author to observe the environment and its constituent parts, such as the student, class, environment, technology, layout, rules, expectations, attitudes, the socio-cultural tenets, learning, etc. According to Cohen and Manion (1995), a case study should consist of observations, notes and diaries, and be in an historical format that will tell the story as it unfolds. The following chapter provides the authors experiences with the VLE case study.

4.3 Research Plan

The literature review and pilot studies provided the basis for my transfer to my doctoral studies. The following table indicates the research plan for the completion of my research.

November 2008 December 2008	• Continue work on transfer document • Continue work on the development of collaboration systems based around teaching practice • Submit transfer document
January 2009 February 2009	• Research requirements for collaborative system using current software (Microsoft SharePoint Server and One Note) • Prepare paper for UofT Teaching and Learning conference • Explore possible specifications for a college teaching model • Run trials on suitable software solutions

February 2009 – April 2009	• Discuss project outcomes with selected college curriculum team • Analyse results • Prepare ICT documentation and samples for college OFSTED inspection in early April
April2009 – Dec 2009	The final stage of the research will involve the development of a suitable model that can be used within the FE college for the integration of technology into teaching and learning practice. This model will be formulated from previous studies and the literature reviews. Trials using software solutions such as Microsoft Office SharePoint and Microsoft Office OneNote will be investigated. A Teacher Toolkit for good practice using ICT will also be trialled. The college has a strategy to move towards a digital environment and this research will form part of a strategic plan to enhance this vision. The final thesis will hopefully provide guidelines for other institutions to aid their development in the future

April2009 – July 2009	• .Broaden scope of collaborative system to link with VLE and other teaching systems
	  ○ Investigate use of Netbook (mobile technology) for staff
	  ○ Investigate integration of systems via the Portal concept
	  ○ Develop teacher toolkit
	  ○ Explore possible use or development of intelligent agents to include in toolkit.
	  ○ Evaluate likely model of practice

Sept 2009 – Dec 2009	• Evaluate trials and analyse results • Develop Teacher toolkit and ICT strategy for the future • Sets of workshops (3) to evaluate the model with college staff • Analysis of the evaluation results.
Dec 2009 – July 2010	• Thesis write up • Completion and submission of DProf. thesis

Chapter 5: Discussion

The following section relates to a number of projects undertaken over the three years that resulted in three conference papers presented at the HE Academy Annual conferences and a JISC on-line conference. These papers will be addressed later in the Chapter.

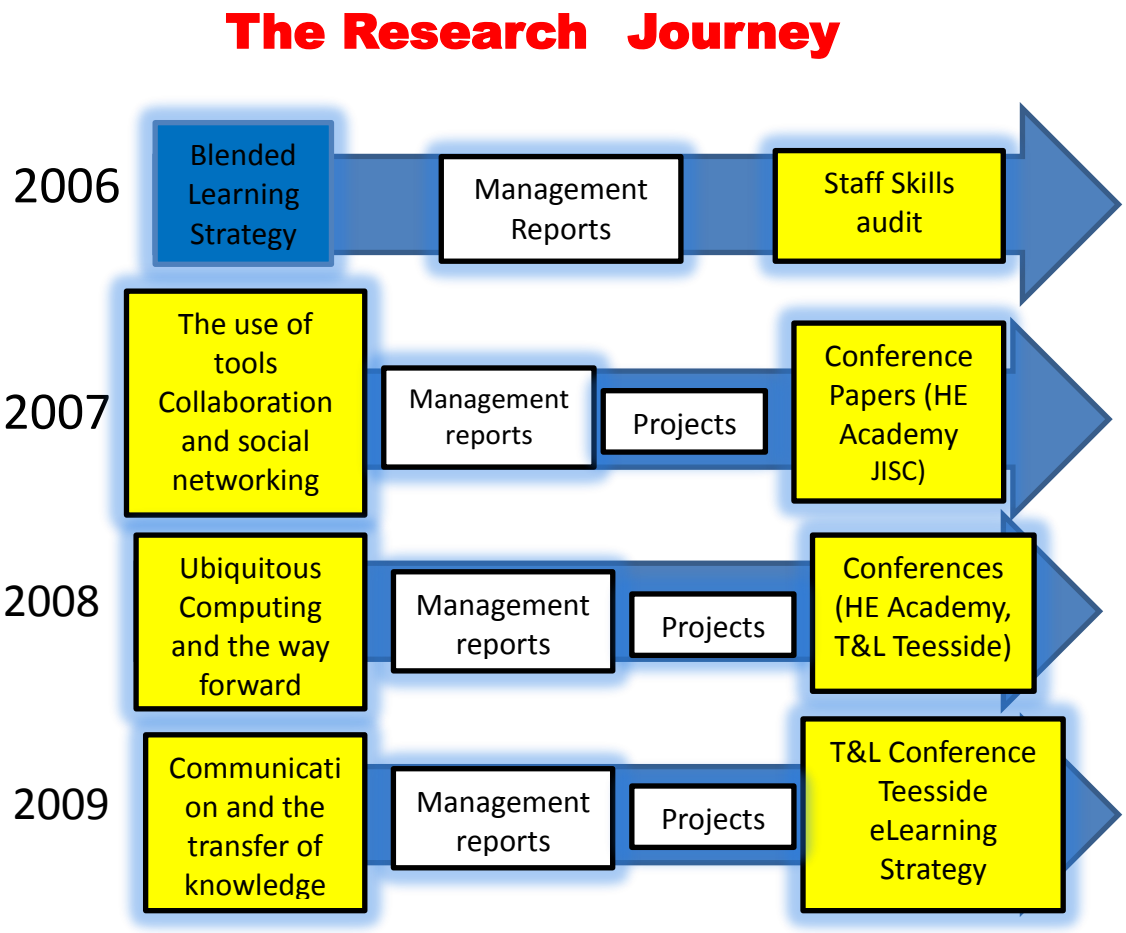

Fig 2 Pictorial view of research journey

My role as ILT Project manager in 2006 resulted in a study of technological requirements for the transition into a new college premises in 2008. The starting point was to gather information about current practice and propose a model for taking the college forward into a new digital environment. First steps included the development of a blended learning plan and the exploration of current trends in educational/learning technology. A range of management policy documents and technical investigations were published during this initial research period.

These included[28]

- A strategy for Blended Learning (Sept 2006).
- The development of an eLibrary and collaborative infrastructure (Oct 2006).
- eLearning: the future trends (Nov 2006).
- eLearning: a review of emerging technologies. (Nov 2006).
- Collaborative working project proposal (Sept 2006).
- Blended learning and eLearning project progress report (Oct 2006).

In addition, I felt it was imperative to determine a college benchmark concerning staff ICT skills and compare this to the literature found during my searches. A study of staff skills provided an understanding of where the college was in terms of moving towards its digital goal. This initial study arose from concepts derived out of previous researchers (Becta, 2006; Galanouli D, et al, 2004) who have shown that until recently the majority of courses offered in the UK to train teachers in the uses of ICT have focused on the technical aspects of ICT with little training about the pedagogical practices required and how to incorporate ICT in the curriculum. Galanouli indicated that in many ICT professional development courses, teachers are not often taught how to revise their pedagogical practices, how to replace other traditional lessons without depleting the curriculum coverage and so on. This means that after teachers had attended a course they still did not know how to use ICT for teaching pupils.

As a consequence my study hoped to determine if a similar issue still related to Further Education (FE) lecturers and that most teachers were reluctant or unable to integrate ICT into their practice due to technical barriers. Results from my investigations led to a college policy to improve staff development over the coming year and the development of a range of projects designed to be integrated into a blended learning programme. My ultimate findings were published in a conference paper to the HE Academy ICS Conference in 2007.

> Corfield G. (2007) *The use of ICT in teaching and learning: the pervasive solution,* 8th Annual Conference of the ICS HE Academy, Southampton University [29] **http://www.ics.heacademy.ac.uk/events/8th-annual-conf/programme.php#daytwo**

[28] See previous references to these documents
[29] Supp. Mat. 3 (1)

Communication with management and staff on the use of ICT in teaching and learning was provided by means of a monthly newsletter called “Blender – Blended and eLearning at Redcar” This offered me the opportunity to not only publish project reports but also make staff aware of current technologies available to them for use in their practice.

Having established a benchmark for staff skill levels the exploration of suitable tools and a range of related projects were instigated throughout 2007.Management documents relating to these initiatives were produced including[30]:

- Blended Learning progress reports (monthly).
- Collaboration (Oct 2007).
- Development of Social networking (Oct 2007).
- Second Life (Oct 2007).
- Blended Learning newsletter (monthly).

Collaborative projects such as the use of wikis, videocasts and podcasts were successfully trialled in a number of curriculum areas. Greatest success however was shown in the vocational areas such as Travel & Tourism and Built Environment. One interesting factor was however that student motivation to engage with collaborative technology was greatest when these tools formed part of their assessment. Casual use showed rapid drop off use. My work on collaboration attracted interest from JISC and I took part in an on-line conference as follows:

> Corfield G. (2007) *The Use of Wikis to engage FE students,* Innovating e-Learning on-line conference 2007, JISC **http://www.jisc.ac.uk/media/documents/programmes/elearningpedagogy/ebooktwo2007.pdf**

Social Networking and the use of Virtual Worlds proved to be somewhat disappointing.

[30] See previous references to documentation

Projects involving some form of social collaboration were less successful. Internet presence was established for a number of groups in the college including members of student representative groups but failed to engage them in any meaningful way. One reason raised in interviews was that participants felt they were being monitored and this restricted their input choices.

This led me to review my approach to engaging staff and students with ICT and build a strategy that linked to more successful elements of current tools and explore ways of creating a more ubiquitous environment that would appeal to the majority of staff. 2008 was spent investigating further collaborative tools (Microsoft SharePoint Server and Microsoft Office OneNote) in order to test whether exploiting the successful elements of collaboration and knowledge sharing would create a greater interest in staff investing in ICT for their teaching practice.

October 2008 was the proposed date for moving into the new college building and although a great number of initiatives had been trialled, I still felt the college staff were unprepared for the changing environment they were entering. I proposed several projects to address some of the shortfalls, but not all were successful. Funding to trial SharePoint Server proved difficult and I decided to only trial OneNote with selected groups of staff. Projects that were successful included the use of ePortfolios on a NVQ Health and Social care programme. The ePortfolio system was hosted on a third party server and includes both assessment and evidence collation. ePortfolios on non NVQ courses was trialled with two programmes using a Blackboard add-in and was deemed to be highly successful by both students and staff. Management reports throughout this year included[31]:

- ePortfolios in Learning Support and NVQ courses (Feb 2008).
- Ubiquitous Computing (Feb 2008).
- Electronic student induction (Feb 2008).
- College Digital TV and radio (Dec 2008.
- Blended Learning Newsletter (monthly).

Following my research into the use of collaborative tools and the development of a more ubiquitous environment, I presented three papers at the HE Academy ICS Conference, Teesside University Teaching and Learning Conference and Teesside University HE in FE conference.

[31] See previous references to documentation

These were:

1. Corfield G. (2008) *Could PLEs be the future – from institutional to student control?,* 9th Annual Conference of the ICS HE Academy, Liverpool Hope University ***http://www.ics.heacademy.ac.uk/events/9th-annual-conf/Papers/Proceedings/Proceedings%20Full.pdf***

2. Podcasting and Videocasting to support the learning process. Teaching and Learning Conference Jan 2008 Teesside University.[32]

3. Are PLEs the answer? HE in FE Conference June 2008, Teesside University.[33]

It was becoming apparent that my research and exploration into the integration of ICT into teaching and learning was taking a slightly different route than my original starting plan. I had been investigating means of engaging staff and users in learning technologies, but it was becoming apparent that both staff and management were communicating different needs. Management required a skilled staff capable of enhancing the learning process with technology but were failing to use similar technology in their communication of knowledge and information.

Having settled into a new building with all staff having access to their own desktop Pc and access to on-line teaching resources (provided by FENC - Further Education National Consortium), I decided to explore this communication gulf and seek a solution that might both engage staff in technology as well as create a much more effective management tool for communicating to staff.

Collaborative working projects continued during the year. For example the college Travel & Tourism group eTwinned with a German school in Dusseldorf and created a link using Blackboard as the medium along with wikis and on-line chat. Videocasts were exchanged as well as a video conference. Built Environment, Sport and Leisure and Hairdressing all saw the value of Blackboard and the integration of video into their learning environment.

Classroom electronic whiteboards became vital pieces of equipment that engaged students in various interactive material used for group work.

[32] Supp. Mat 3 (26)
[33] Supp. Mat 3 (3)

Despite success in various areas of technology use, there were still a high percentage of staff not engaging with the technology and when I interviewed staff regarding the barriers, it appeared to be still partly due to time available and lack of motivation to change teaching style. I needed some means of engaging these staff with technology and stimulate their interest in creating more interactive teaching sessions. A small project using Microsoft Office OneNote as a focus for a selected group to post material and create a "teacher's toolkit" had limited success. Not all members of the group contributed but those who did indicated they liked the opportunity to have such a shared area.

Having investigated a range of technologies, implemented projects to engage staffs and students and provided a wide range of staff development opportunities, I still felt frustrated that no real progress had been made in establishing a technology standard in the college's teaching and learning. My work on the Teesside University Flexible Woking group helped me evaluate the needs for an eLearning strategy and I subsequently produced a proposal for such a document.

In addition, I focussed my research on the distribution of information and explored how intranets offered the chance to change cultures in an organisation (Flowers S, et al; 1998). The final stage of my journey was in sight. I planned to concentrate on communication software such as a college intranet and explore how this could help change the ICT culture (or lack of?).

The following papers were therefore presented to management in 2009 and my findings on the use of Intranets also presented at Teesside University Teaching and Learning conference[34]:

- eLearning Strategy at Redcar & Cleveland College (Nov 2009).
- Intranet survey (Nov 2009).
- Using an Intranet for Cultural Change (Teesside University T&L conference Jan 2010).

My findings from these studies indicated that the college has a second generation Intranet. It operates basically as a repository for static information relating to the college performance with references to applications that staff are required to use.

[34] Supp. Mat. 4 (1), (2)

There is no ability to interact with the data and any changes are carried out by a variety of administration staff.

A survey of staff indicated that this approach is not only poorly populated, it does not appear to provide staff with the sort of information they would like to access. The management of knowledge in the college is consequently not providing staff with the sort of functionality they require. My research into this area has attempted to describe not only the benefits of an intranet but also discuss that the college environment needs to adapt to a changing educational environment and by engaging in a more meaningful way with the aid of technology, they will encourage staff to take a step forward in their teaching styles.

To date (2011) the college has made some attempts at rationalising their approach to integrating technology:

- The college VLE (Blackboard Version 9) is now hosted by Blackboard in Holland giving the college a much more cost effective approach to maintaining this facility.
- The development of a new HE centre has resulted in a new system whereby lectures and PowerPoint slides can be integrated and uploaded into the VLE or Intranet. The use of SharePoint Server is still on-going.
- The college building is now completely wireless and some 50 netbooks are available for students to use and roam the building.
- The introduction of video technology has resulted in the college adopting videos about teaching and learning issues on the VLE and the college website. These videos are now professionally produced (see http://www.cleveland.ac.uk).
- The eLearning strategy is in place but there are still some issues developing the installation of Windows 7 software as the standard.

My research has seemed to have had some impact on college policy regarding technology and will hopefully guide the institute in years to come.

Chapter 6: Conclusions

6.1 Achievement of Aim and Research Questions

My work over the last 4 years, has explored the concept of computer supported collaboration within an educational environment and the use of various technology tools as teaching aids. Current teaching practice within my institution involved a number of conventional techniques with little or no link to technology. Software development and the rapid growth of web services have seen a switch towards collaborative working over the internet with simple applications and file sharing becoming the norm. College staff have not grasped these opportunities and need some guidance in terms of a suitable model that works in all cases.

Research question 1:

> "*What are the barriers to teaching staff using ICT in their practice and can this engagement be improved? (Supporting material 3 (1))"*

provided a range of issues surrounding college staff and their inclusion of technology into their teaching practice. A teacher toolkit was piloted with a group of mentors using Microsoft OneNote as the collaborative tool. This approach had limited success but did indicate that the use of shared areas for like-minded teams or groups had some interactive advantages. Although OneNote might not be the preferred tool a shared resource other than a VLE should be investigated as a means of encouraging collaborative work or integration of tasks.

Research question 2:

> *"Is there an ideal set of techniques or technologies that engages students in learning? (Supporting material 3 (2)) "*

was extensively explored and a range of digital environments investigated during my period as ILT project manager. VLEs are still considered a vital tool for teacher-student interaction and as aid to learning both in-house and at a distance. I concluded that tools such as wikis and blogs and even journals were very successful when used as alternative approaches to assessment methods within the student domain.

However, when it came to teacher-teacher interaction, VLE technology had limitations. A solution using Microsoft OneNote was trialled but had limited success. This was mainly due to technical aspects and the problems of multi-user editing. Microsoft SharePoint Server was considered as a better tool but excluded because of technical support needed and cost. My current research is looking at fourth generation intranets as a possible way forward.

The major issue surrounding my research in this area was the poor skill level found amongst college lecturers and managers. Attempts to raise these skills by a staff development plan had limited success. One-to-one and consultative interaction between me and staff had a better effect but overall the skill level at the end of the three years only improved slightly.

Research question 3:

> *"Is there a digital environment that can be replicated throughout teaching practice and applied to all curriculum areas? (Supporting material 3(3) and supporting material 4)"*

was partly answered by using project based scenarios which gave some staff a new insight into the use of ICT. However, those involved in projects were generally the more pro-active teachers. A slightly different approach is needed and College Management has been advised to explore the use of an interactive college intranet and dedicate eLearning team as a possible way forward.

Generally the research provided college management with a much improved insight into the use of technology within teaching and learning practice. Policy changes such as staff development plans, eLearning strategy, hardware profiles have all been enhanced and the college moved from an OFSTED grade 3 (satisfactory) in the old building to a grade 2 (good) in the new building with a positive HMI comment on the college use of ICT. (HMI College Inspection Report August 2009).

6.2 Contribution to Practice

My role as Information Learning Technology Manager took me on a research journey that has established an understanding of how technology can play a part in teaching and learning and to what extent one can establish ground rules for success.

I have managed to establish a pictorial view of my findings in what I have called a "technology road map"[35]. This chart is intended to act as a guide to practitioners who are seeking to establish an eLearning Policy in relation to what I have found to be workable and successful in my educational establishment. To summarise my findings I offer the following commentary on the Road Map in Supporting Material 3 item 27.

1. **Policy:** It is vital that the institute develops a sound policy on equipment to be used in the establishment and where it will be sited. Just as importantly the ICT technical staff need to have a good networking policy (e.g. wireless, cable etc.). Finally the institute will need to determine its eLearning strategy in order to plan training, and use of available technology.

2. **Intranet:** It is important to develop a user centric, single source portal that not only provides staff with an indispensable tool to share information, manage knowledge and disseminate news but also equips them with access to resources in order to further increase efficiency. The intranet needs to become the starting point for all users to find the information they need and to perform tasks that make their jobs easier. It should also provide the platform for discussion and interaction between individuals and groups.

3. **Virtual Learning Environment (VLE):** On the teaching and learning side, the implementation of a VLE is now well established within education. However, in order to integrate technology within the T&L environment and engage students then not only course content should be created but also the following tools:

[35] Supp. Mat 3 (28)

a. Discussion/chat facilities
b. Wikis/Blogs tools
c. ePortfolios/Journal tools
d. eAssessment facilities

4. **eLibrary:** As part of the staff Intranet, there should be available resources for teaching in the form of an eLibrary. This section of the Intranet would provide resources such as video, audio, PowerPoint slides and links to other course material as appropriate. Such a central resources offers staff a “one-stop shop” when creating content for the VLE and ensures consistent house style throughout the institute.

5. **Collaborative working:** As a final issue, the above points are all intended to create a collaborative working environment around a student centred approach. It is therefore important that the institution encourages this culture if tools such as, eInduction, ePorfolios and eAssessment are to be introduced and a workable and successful digital environment is developed

6.3 Personal Journey

The ability to use ICT effectively and appropriately is seen as essential to allow individuals to acquire and exploit information within their everyday activities. The purposeful use of ICT is consequently considered to be a vital requirement in today's information society and forms a significant part of most teaching strategies

My discussions with teaching staff seems to indicate that a lack of effective training is not a major issue. What is more predominant is the lack of time to explore the use of ICT as well as a lack of confidence in using ICT resources. Providing teaching staff with relevant digital material in an accessible form and location has proved to be the most popular item on the teacher's wish list. Having established this premise my own personal journey has involved an exciting exploration of not only technological tools, but also new methods of engaging students in their learning experience.

My own practice has also benefitted from my doctoral research and provided a new perspective on learning that has allowed me to engage my students in some very fulfilling and successful experiences. Students have not only engaged in learning but also achieved recognition of their efforts in some innovative ways (See supporting material 3 (20) and (26)). I have also managed to engage both staff and college management in activities that have opened up new challenges that resulted in improved Ofsted grade throughout the college. (See supporting material 3 (21), (22), (24) (27)).

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Supporting Material 1: VLE exploration

1. Timetable of Key Events.
2. Digital Media Survey of School Staff (Summary).
3. Staff Development and Student Taster Programme Outline.
4. Developing the 14-19 curriculum in Media (eMedia) LSDA Paper and Project

1. *Timetable of Key Events*

Date	Event	Comments
20th – 24th October 2003	Promotional Tour of local Schools.	9 local schools visited and 250 students plus 50 teaching staff seen over the week.
November 2003	Letter re potential partnership sent to **all** school Head teachers.	Positive response from 3 schools.
December 18th 2003	First meeting with Heads and college staff.	Terms of reference of involvement determined and action plan agreed.
January 6th 2004	Taster Session Bydale School.	Full day - 23 students involved.
January 7th 2004	Presentation at Rye Hill School.	Half day event.
January 23rd 2004	Staff Development session.	Half day familiarisation of BTEC First Diploma in Media course requirements.
February 11th 2004	Staff Development session.	Full day – Web animation and skills. workshop.
February 27th 2004	Taster session Bydale School.	Full day – 26 students.
March 26th 2004	Taster session – Sacred Heart School.	Half day – 43 students.

2. *Digital Media Survey*

The following table summarises the results from a survey of the three local schools involved in the project. The results are general, but do indicate staff development needs of school teaching staff.

Skill Area	No Experience	Beginner	Competent	Expert
Understanding the Media ▪ Professional practice ▪ Professional Brief ▪ Production Management ▪ Research Skills	90%	10%		
Web ▪ HTML ▪ DreamweaverMX ▪ FlashMX ▪ Fireworks ▪ Others	70%	20%	10%	
Multimedia ▪ Director 8.5 or above ▪ Others	90%	10%		
Digital Graphics ▪ PhotoShop 7 ▪ Others	30%	60%	10%	
Video/Motion Graphics ▪ Premier ▪ After Effects ▪ Others	50%	50%		
Sound ▪ Sound Forge ▪ Others	90%	10%		
3D Modelling ▪ 3DS Max ▪ Others	100%			
Comments **Most staff have little or no digital media experience apart from digital graphics skills (Photoshop). These competent teachers were predominantly from Art & Design**				

3. Student Tasters

These programmes were designed to give potential students a “feel” for the BTEC content. The programme was arranged around these topics

Activities	
Understanding the Media Drawing techniques	
Music/Sound Technology	(SoundForge)
Digital Graphics	(PhotoShop 7)
Animation	(FlashMX)

Staff Development Programmes

The staff development sessions were essentially another form of taster session to familiarise staff with the programme and give some hands-on experience of some of the content. Their intention was to offer the teachers an opportunity to decide which staff member wanted to be involved in the partnership.

Activities	
The BTEC Programme Introduction to the Core Units Optional Units Assignments and Assessment The Final Major Project	
Web Authoring	**DreamweaverMX workshop**
Animation Techniques	**FlashMX workshop**
Multimedia Production	**Director workshop**

4. **Developing the 14-19 Curriculum in Media (eMedia)**

KEY WORDS

Media
Digital Media
eLearning
Virtual Learning Environment
14-19 Curriculum

SUMMARY

Development of a sound 14 -16 link with local schools was perceived to offer the college access to potential students for many vocational courses. (E.g. Engineering, Health and Social Care and Computing). The introduction of digital media programmes and the removal of a GNVQ route, offered the opportunity to engage year 10 students in an exciting vocational programme at BTEC First Diploma level (4 GCSE A-C equivalent).

This project was therefore seen as an opportunity to develop a high quality 14-19 learning experience in eMedia that would encourage progression to level 3 qualifications and ultimately HE.

The steps taken in this project were:

1. A survey of interested schools in order to establish a framework for developing an eMedia philosophy within the 14-16 curriculum and to determine the potential student cohort for such an approach.
2. Assessment and development of school teaching staff skills in digital media through an initial staff development programme.
3. Organisation of student tasters in order to determine planning aspects of the project.
4. The assessment of course material based on a current full time BTEC First Diploma in eMedia and evaluate the use of a Virtual Learning Environment (VLE)) in such a delivery.

A teaching strategy incorporating a range of eLearning facilities was central to this project. In particular, the college VLE was seen as a major tool in delivering a course that would fit the timetabling constraints of local schools.

Overall the project was highly successful and has resulted in a far larger intake for the new provision than was initially anticipated. All staff involved have expressed their enthusiasm for the proposed programme and some very valuable experiences in using VLEs and an eLearning philosophy have been gained.

CONTEXT

Redcar & Cleveland College officially came into being in August 1997. It was previously known as Cleveland Tertiary College, which opened in August 1994, with the merging of Cleveland College of FE and Sir William Turner's Sixth Form College.

The College occupies 3 sites - on Corporation Road and Redcar Lane, Redcar and a further site in Loftus. (The three former sites were previously known, respectively, as Cleveland College of FE, Sir William Turner's Sixth Form College and East Cleveland Community College). Redcar & Cleveland College has the challenge of providing Further Education facilities for the administrative district of Redcar and Cleveland Borough Council. This is a district of wide contrasts. In the north-west the area running into Middlesbrough surrounds both steel-making and chemical complexes. In contrast the area surrounding Redcar and the market town of Guisborough provides the residential base for many people who commute to work in the commercial and industrial centres of Tees Valley (Middlesbrough, Stockton and Hartlepool). The largest geographical area is the rural section which surrounds Redcar and comprises of small towns and villages which developed around ironstone mines at the beginning of the century and reach from the coast with the town of Marske and the holiday resort of Saltburn, to towns like Loftus and Skelton, and on into the magnificent rural areas on the northern slopes of the North Yorkshire National Park.

As the college develops, there have been a series of technological initiatives that enhance the learning experience of its students. In particular, the introduction of a Virtual Learning Environment has opened up new opportunities for exploring a range of innovative teaching strategies. In particular the Computing Department at the college was developing it's portfolio of courses to incorporate BTEC First and National Diploma in Media (digital or eMedia). In addition the college is enhancing its links with local "feeder" schools in developing the 14-19 curriculum across the College. This project was therefore conceived as part of the 14-19 initiative and is seen as a means to encourage local students to progress towards level 3 courses in the college.

AIMS AND OBJECTIVES

Development of a sound 14-16 link with local schools was perceived to offer the college access to potential students for many vocational courses. (E.g. Engineering, Health and Social Care and Computing). The introduction of digital media programmes and the removal of a GNVQ route, offered the opportunity to engage year 10 students in an exciting vocational programme at BTEC First Diploma level (4 GCSE A-C equivalent).

The overall aim of the project was to develop a high quality 14-19 learning experience in eMedia that would encourage progression to level 3 qualifications and ultimately HE.

In achieving this aim the project would highlight a series of objectives as follows:

5. To survey interested schools in order to establish a framework for developing an eMedia philosophy within the 14-16 curriculum and to determine the potential student cohort for such an approach.
6. To determine school teaching staff skills in digital media and schedule a staff development programme.
7. To organise student tasters in order to determine planning aspects of the project.
8. To development course material and the mode of delivery. (The material was to be based on the current full time provision in eMedia which incorporated the use of a Virtual Learning Environment (VLE)).
9. To develop an Action Plan for the implementation of the course in September 2004 and make amendments as appropriate.
10. To review the need for additional funding in the light of outcomes and identified future work.

Central to all these aims and objectives was a teaching strategy incorporating a range of eLearning facilities. In particular, the college VLE was seen as a major tool in delivering a course that would fit the timetabling constraints of local schools.

STRATEGIES

Background

The initial concept of developing a quality provision for 14-16 year old students came about after a series of college marketing initiatives to attract applicants onto full-time programmes in Computing. The department offered a range of courses predominantly aimed at “conventional” computing students who historically progressed into Higher Education or employment within a software development or system support environment. The department was exploring future developments in the light of the pending removal of GNVQ provision by Examining Boards (The Computing Department had already made a switch to BTEC programmes as the way forward). In addition, the University of Teesside was growing in reputation for its animation and games degrees and many level 3 students were focussing on this route as part of their career development.

A casual contact by the Computing Head of Department with a small courseware sector of the University of Ulster (Synergy Learning) generated the opportunity to move the computing section forward into a new and exciting area of digital media. Synergy Learning was, in 2002/3, developing a vocational course for Edexcel in eMedia. Initially piloted in Belfast as a programme to encourage business start-ups, it eventually resulted in a BTEC programme at First and National level in eMedia.

A series of courseware demonstrations, staff training and eventual adoption by Edexcel offered the college an additional pathway for those students interested in careers within the media industries. The eMedia courseware was designed to be delivered via a VLE and had predominantly an interactive multimedia-rich content. In fact it seemed ideal for the current technology changes that were taking place in the college.

Planning recruitment for these full-time programmes also created an opportunity for some cross-college collaboration and it opened the door for the Art, Design and Performing Arts department to work with Computing in delivering these courses.

This was a feature that brought together creative expertise in digital imaging, drawing techniques and Performing Arts with the computing skills of animation, multimedia and web authoring. Fortunately the Computing and Art & Design had a wide range of industry standard software in place for this course and additional purchases were kept to a minimum. (It was estimated that to start from scratch, the eMedia course would require software acquisition at the rate of approximately £1000 per student).

14-19 Curriculum Considerations

During this planning stage, the Head of Department Computing arranged a tour of schools in the Redcar area using the college "bus" with both Art & Design and Computing demonstrations on board. Some 250 students passed through the exhibitions and as a result three schools approached the college to explore the possibility of collaboration. An initial meeting with the three Heads of the schools ended in a positive response to offering the BTEC First Diploma to year 10 students from September 2004.

This meeting generated a series of queries and actions relating to such a provision. These are summarised below:

- Where will teaching take place – school, college or both?
- What constraints will the school and college timetables create?
- Is there a staff development need in schools and which staff/departments will be involved?
- What issues surround resources?
- Is funding an issue or can this be run under the Flexibility banner?
- What timescale is feasible for the delivery and start of the programme?

However, regardless of some unanswered questions, the mood of all three schools was to enthusiastically grasp this opportunity and agree to put a development programme together for a start date of September 2004.

The Planning Phase

Following this initial meeting, the three Headmasters got together and came to a consensus on how the course would be delivered and at what time in the week. Amazingly all schools were in agreement and came up with a suggested timeslot that fitted well with the college day. It was also agreed that the delivery of the programme would take the form of five phases or milestones:

1. A programme of staff development/familiarisation and taster sessions for potential year 10 students (i.e. current year 9s) to be in place during 2003/04

2. Delivery of the course would be over two years with four hours taught at the college and two hours delivered solely via the VLE. Year one (2004/5) would involve College staff teaching content and school staff shadowing.

3. At the end of the first year, schools would review whether the new group of intakes would be taught at the college or be transferred to the school for adoption of a new BTEC First Diploma intake.

4. The second year of delivery (2005/06) would again involve college staff leading the remainder of the programme, with school staff shadowing.

5. At the end of year 2 (2006), the college and schools would review the future delivery needs and decide whether this programme would continue on college premises, or would be totally transferred to the local schools. This decision has significant resource issues and would require a substantial investment by schools in equipment, course material and software.

Staff Development

The three local schools were extremely enthusiastic about the proposal and delegated some 20 teachers to undertake initial staff development and familiarisation. An initial survey of school teaching staff skills indicated a huge shortfall in digital media experience. Very few teachers had any experience of Web authoring; none had experience in animation or multimedia authoring and a small minority (mainly Art teachers) had some experience in digital graphics. The results from the survey confirmed the need for planned intensive staff development over the duration of the programme. However some initial development work was felt necessary in order to raise staff awareness of the programme being proposed. Three events were organised to cover

- Course Structure and Unit content
- Beginners workshop on Animation
- Beginners workshop on Multimedia

In addition a series of taster sessions were scheduled for groups of students (year 9) in all of the three schools. These were designed to test the interest of potential year 10 students.

The final series of staff development sessions has been planned to take place during the first and second year of delivery and it is anticipated that they will take the form of formal skill workshops, VLE activities (distance learning) and college tutor shadowing.

Teaching Strategies

As part of the staff development and planning phases the use of the college Virtual Learning Environment was seen as a vital element in delivering this programme. The current Full time BTEC programme was run during 2003/04 using Synergy Learning material delivered via both the VLE and interactive whiteboards.

Some college staff were unfortunately not as enthusiastic with this technology as had been anticipated, but students, on the other hand, found working with a VLE exciting, interesting and held their focus on the course aims and objectives.

All was not plain sailing however. Initial problems with the college VLE (Learnwise version 1) brought to light that this version of the software had difficulty coping with Multimedia rich content – not necessarily in running it, more loading and updating large media files.

Students enthusiastically interacted with activities over the VLE, but again Learnwise 1 was so primitive that most students were unable to access material outside the college. A very important lesson was learned in that promises from manufacturers do not always come to fruition.

By the en of 2003, the college and Synergy Learning (University of Ulster) were in constant touch with Granada about the VLE and its poor performance. By the spring term, Granada had released a new version (called Olympus) that they promised would solve all the multimedia problems. Not so – a series of problems solved by patches from Granada, eventually (by Easter) provided a working VLE that performed in a satisfactory way.

This was in fact a very costly exercise in terms of college staff resources and loss of credibility of staff in the eyes of students. Students became disillusioned with VLE technology and slowly dropped out of accessing elements of the course that were designed to enhance their communicative and interactive skills (e.g. forums, discussion groups and self-assessment activities). A clear indication of the negative effect problematic technology can have on students' learning experience. Hopefully these issues will not arise when the course goes live within the schools and all course material will be available on the college VLE both internally and externally.

Resource Issues

Central to this project and the ultimate success of delivering a quality experience, is the use of a wide range of resources. The First Diploma in Media course requires teaching staff to use eLearning as a focus for students' learning. All material has been developed to allow staff to adopt a range of teaching strategies and hence incorporate a range of learning styles.

Because the college implemented a full time BTEC First Diploma in Media in September 2003, it was possible to pilot a range of resources for classroom and VLE delivery. Although the materials for the course were developed and made available on-line (for VLE as delivery), some teachers adopted a strategy of using this material on interactive whiteboards. The experience of using multimedia-rich facilities has proved to be very useful and some amendments to content and approach will be incorporated in the school's project. In particular the use of skill workshops both classroom based and on-line will form a central feature in developing multimedia practice on this course.

Timetabling within the three schools has proved to be relatively simple to organise. All three schools will attend the college one morning per week for two years. This will cover the core content, whereas activities such as research, skill development will be handled using the VLE. Initial indications have shown that the number of interested students is well above that planned and some revision of college staffing plans will be necessary.

A range of staff development sessions over the period of the course have been planned and this will start with induction to the programme in September 2004.

OUTCOMES

The first milestone of establishing a project team was very quickly achieved. This team consisted of decision makers in both the college and the schools. Membership consisted of the Project leader (GC), the college Principal, the college Director of Curriculum, the three schools Head teachers and curriculum leaders from each school, plus a number of seconded members (technicians etc). This approach worked extremely well. The development of plans ran smoothly and decisions made quickly with little disagreement.

Development of the initial training programme and the production of course material was mainly in the responsibility of the project leader (GC). Although this looked an onerous task initially, it was less problematic than anticipated. Synergy Learning provided material for the full time programme, which allowed college staff the opportunity to become familiar with both content and style.

An initial series of three staff development courses and two student taster programmes were completed during the project and worked well. Feedback has been positive and all involved have been very enthusiastic in taking the project forward. (The schools have already determined the day and time for the course as Thursday mornings starting in September 2004).

Initial plans to present this course to a cohort of 20 students does look at this stage an underestimate. The feedback from schools indicates a potential take-up of 30 – 40 students. This will need addressing in terms of resources available within the college.

The use of a Virtual Learning Environment has been the most significant success factor even though there were some technical problems on the full time pilot programme.

Staff are excited at being able to access material remotely and have warmed to the experience of using on-line material during workshop sessions as part of the eLearning philosophy.

This project has not only impacted on the college's involvement with local schools, it has also provided a focus for the ILT committee to explore its eLearning policy and draw up a future strategy for other areas within the college. Demonstrating transformation is now a key feature in the college's preparation for inspection in 2004/05.

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KEY LEARNING POINTS

- A quality learning experience is not merely a factor of resources; it depends on the interaction of staff students **and** resources.
- The 14+ market is one that colleges can contribute to effectively. In the area of specialist technology, schools are eager to become involved. Colleges with expertise in curriculum areas such as digital media can provide a platform for collaboration and partnership.
- Virtual Learning Environments are still in their infancy. A steep learning curve is evident when developing courses using this technology. However, once a philosophy and approach is established, both staff and students respond to this technology with enthusiasm.

NEXT STEPS

Further work being undertaken to support this project includes:

- Planning and preparation of the course delivery is underway. Timetable issues are being resolved but staffing issues are still under discussion..
- Initial staff development and taster courses have been completed, but the continuous development of school teaching staff requires resolving. Further discussion with school partners will be concluded before September 2004 and appropriate plan made for shadowing etc.
- Funding of this project has been an issue, but the local LSC was extremely supportive and allocated some funds for the project implementation. Additional funding will however be required to sustain the course throughout 2004/05 and beyond.
- The project leader has been working on some new programme developments in the area of computer games design and this is seen as the next phase of development in this exciting area of digital media. Continued involvement with local schools is confidently assured.

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Supporting Material 2

Statement of contribution to Papers

Corfield G. (2007) *The use of ICT in teaching and learning: the pervasive solution,* 8th Annual Conference of the ICS HE Academy, Southampton University

George Corfield contributed 90% to the paper and represent 100% of his own research work

Signed.*G. T. Corfield*.....

Corfield G. (2008) Could PLEs be the future – from institutional to student control?

9th Annual Conference of the ICS HE Academy, Liverpool Hope University

George Corfield contributed 90% to the paper and represent 100% of his own research work.

Signed.*G. T. Corfield*.....

Corfield G. (2007) *The Use of Wikis to engage FE students,* Innovating e-Learning on-line conference 2007, JISC

George Corfield contributed 90% to the paper and represent 100% of his own research work.

Signed.*G. T. Corfield*.....

Supporting Material 3

1 THE USE OF ICT IN TEACHING AND LEARNING THE PERVASIVE SOLUTION

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ABSTRACT

This paper compares the findings of a literature search on the use of ICT in teaching (Scrimshaw, P. (2004); Becta (2004)) with a recent survey amongst college lecturers in a medium sized North East Further Education College. It summarises teachers' perceptions of their current stage of development in making effective use of ICT

The review determines a range of issues surrounding the use of ICT in teaching and learning and indicates a number of external and internal barriers to successful use. The paper also proposes an alternative strategy for ICT integration using desktop devices to enhance the use of ICT as a pervasive resource.

Keywords

ICT, learning and teaching, VLE, ubiquitous computing.

BACKGROUND

The ability to use ICT effectively and successfully is seen as essential to allow individuals to acquire and exploit information within their everyday activities. The appropriate use of ICT is consequently considered to be a vital requirement in today's information society and forms a significant part of most teaching strategies.

A typical college curriculum incorporates the need for valid ICT and information literacy skills no matter what discipline area is taught. Such an approach has raised the question of what currently constitutes a learning environment. (Land, 2005).

In recent years there has been an increase in the availability of computer hardware and software in colleges and most now operate a virtual learning environment (VLE) to

support the learning process. (O'Donoghue, 2006).

However it is also increasingly clear that having access to the technology does not necessarily mean that it will automatically be integrated as a resource within teaching strategies. This could be partly due to an uncoordinated approach which has not encouraged effective policies or planning to take place. (Cox, M. J. and Webb, M. E. 2004), On the other hand, it is also evident that many of the problems surrounding the lack of meaningful integration could be attributed to the lack of awareness or lack of confidence on the part of teaching staff. (Jamieson-Proctor R, M. et al 2006)

Successful integration into the curriculum depends on teachers being convinced of the relevance of ICT to provide access to a broader relevant range of resources for themselves and students. (Preston, C., Cox M. and Cox K. 2000). The potential impact of informed and effective use of ICT as a classroom resource has far wider implications than merely enhancing the immediate learning experience. (Harrison, C.et al; 2002). What are the skills and knowledge needs of teachers? What are their priorities for future development? What will encourage teachers to adopt ICT where appropriate in their professional lives as classroom practitioners, as planners and managers, and as learners?

This paper explores the findings of a literature review on the use of ICT in teaching (Scrimshaw, P. (2004); Becta (2004)) and a recent survey amongst college lecturers and senior managers in a medium sized North East Further Education College. It summarises teachers' perceptions of their current stage of development, their needs and priorities for further development, and their views of the factors which help or hinder them in their attempts to make effective use of ICT.

The research is also part of a wider study to explore the development of an integrated knowledge system in the college based around the concept of a portal to communicate applications and management information and where ICT is a vital but transparent element in management practice.

THEORY

ICT Training and technical skills

This study arose from concepts derived out of previous research (Galanouli D, et al, 2004) who have shown that until recently the majority of courses offered in the UK to train teachers in the uses of ICT have focused on the technical aspects of ICT with little training about the pedagogical practices required and how to incorporate

ICT in the curriculum. Galanouli indicated that in many ICT professional development courses, teachers are not often taught how to revise their pedagogical practices, how to replace other traditional lessons without depleting the curriculum coverage and so on. This means that after teachers had attended a course they still did not know how to use ICT for teaching pupils. As a consequence this study hoped to determine if a similar issue still related to Further Education (FE) lecturers and that most teachers were reluctant or unable to integrate ICT into their practice due to technical barriers.

METHOD

The initial approach to this study involved the exploration of texts that formed part of the Becta research carried out in August 2003 and updated in January 2004. Most of these texts report experiences in the UK and the United States, but evidence was also included in the Becta review from Australia, Canada, Denmark, France, Greece, Israel and the Netherlands. The Becta sources dealt with a wide range of cultural and organisational contexts, covering teachers and schools at different points in the introduction of ICT and were published over a ten-year period which means that the technological context also varied significantly. Having established the perceived issues surrounding the barriers the researcher surveyed some 150 college staff regarding their ICT skills and current practice within a vocational FE college environment.

The method of analysis used was firstly to review the Becta and other texts to conceptualise what was involved in enabling successful use of ICT, and secondly to examine specific recommendations about, or illustrations of, ways of achieving this. Once a model of current practice had emerged, the researcher explored how this compared to experiences in the Further Education College. Statistical results are included within the body of the contribution and a discussion of these findings with recommendations of potential solutions and a recommendation for a college ICT strategy follows.

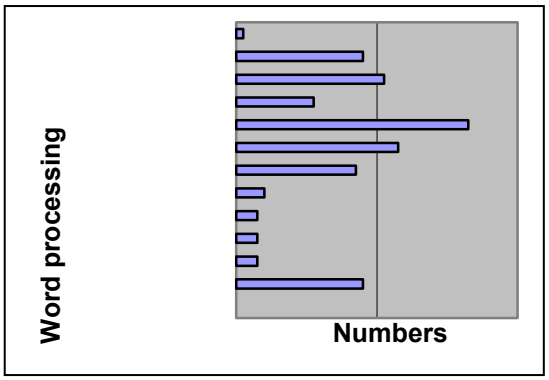
RESULTS

The factors supporting the successful use of ICT

Within the literature review of texts on this subject, Becta concluded that there were a number of factors creating barriers to the successful use of ICT by teachers. A very significant determinant of teachers' levels of engagement in ICT was, they claim, their level of confidence in using the technology.

Teachers who have little or no confidence in using computers in their work will try to avoid them altogether. (Morón-García, 2006).

This factor is very much evident in an FE college with a staff membership who teach across a very diverse mix of disciplines. The analysis of 141 staff ICT needs indicated that the college still had a significant number who were unable to carry out basic ICT tasks. Common applications such as word processing and PowerPoint still appeared to cause staff concern. Simple tasks such as copy and paste were problematic for around 15% of those surveyed. On the other hand almost 30% of staff found the manipulation of slides difficult.



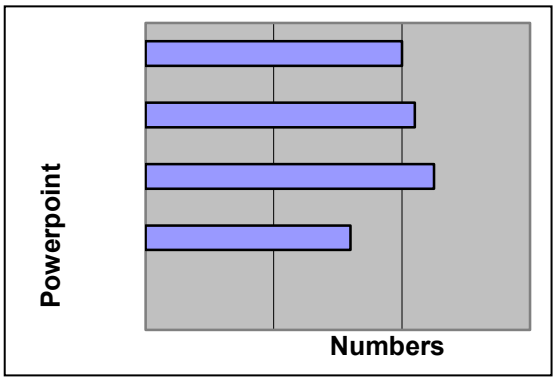
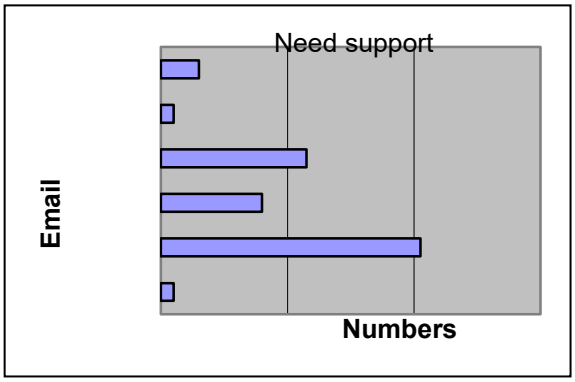


Figure 1: Staff needs for PowerPoint and Word processing

Similar numbers of college staff found handling e-mail and internet based activities difficult. Sending e-mails from home (30%), using attachments (16%) and accessing the college VLE (36%) were some of the problems staff encountered.



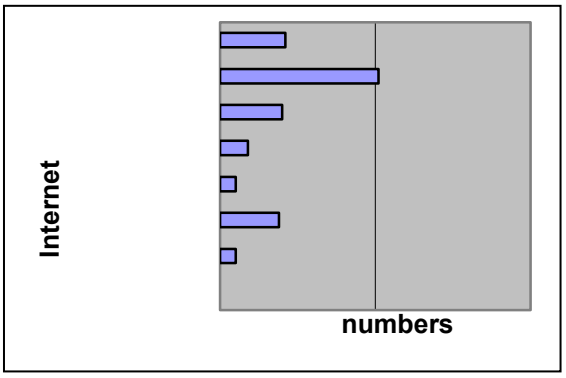


Figure 2: Staff needs for Internet based activities

The survey also examined staff's ability to carry out basic file management tasks. Here again around 20% of staff indicated they had difficulties logging onto the college network, saving files, creating folders and even logging out of the system.

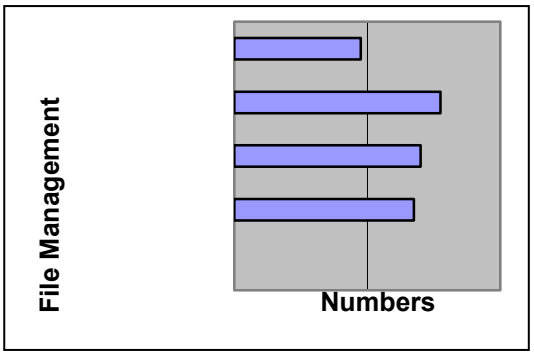


Figure 3: Staff needs for file management activities

Overall the college survey provided an indication of a range of areas that staff had significant problems using ICT within their roles.

- Logging into VLE and Intranet (36%)
- Using e-mail from home (31%)
- Powerpoint; animating text and inserting images (28%)
- Sending an email with attachment.(16%)
- Open, read, & save attachment in an email (13%)
- Creating website Favourites (14%)

Table 1: Significant staff ICT skill deficiencies

It could be argued that if there were concern as to the level of staff engagement with basic ICT, how could the college move forward in encouraging the integration of ICT into the teaching and learning environment? The initial college response was to try and address this shortfall by implementing specific staff development programmes covering a range of topics that

reflected the needs determined by the survey.

- Accessing College VLE and Intranet.
- Blackboard familiarisation.
- Powerpoint.
- Email from home.
- Interactive whiteboard use.

Table 2: Staff development programme based on skill audit

The claim that levels of confidence and therefore levels of ICT use are directly affected by the amount of personal access to ICT that a teacher has (Ross et al., 1999; Cox et al., 1999; Guha, 2000), the amount of technical support available (Cuban, 1999; Bradley and Russell, 1997), and the amount and quality of training available (Pina and Harris, 1993; Lee, 1997) was also supported when a sample population of the audit were interviewed regarding their needs.

Following the ICT skill audit and a series of staff development activities, a college VLE survey was undertaken to determine whether the level of engagement had improved. If this was not the case, then could we discover the likely barriers that might restrict VLE use? Staff were asked to indicate their breadth of involvement in differing programmes of study. Lecturers teach on a minimum of one and a maximum of five programmes, with 50% staff teaching on four or more of these courses.

When determining their roles in such programmes, the survey indicated that the vast majority of these teachers (65%) acted as both course leaders and/or tutors.

When asked what VLE presence these courses had, 75% of staff indicated they had resources uploaded on the VLE, but 20% did not but would like to upload material. In contrast, 5% indicating they did not want to use VLE technology at all.

VLE usage statistics showed a steady increase in both staff and student use since September 2006. On examining the reason for this it appeared that a decision to move the college “intranet” to the VLE environment had, on the face of it, encouraged a more VLE pro-active approach by staff. However, since all college communication and announcements are conducted through the VLE these statistics do not necessarily indicate an increased learning engagement. How could the college improve VLE involvement? 55% of staff surveyed felt they did not have time to develop resources whereas 40% would like better access to ICT equipment. Only 5% of staff wanted ICT staff development time.

In contrast to these comments made by staff, it could be argued that the levels of access to ICT as a significant determinant

in the use of ICT by teachers (O'Donoghue, 2006), is not always the case. Even if adequate, equipment is available, it must be organised in such a way to ensure maximum access for all users (Britain & Liber, 2004); a common failing in establishments like FE colleges who "zone" ICT equipment in laboratories or similar rooms or have limited resources in staff work rooms. A solution to this perceived lack of resource allocation needs exploring whether this be through the use of "personal" devices or the integration of facilities throughout the college teaching environments in a more innovative way (the WiFi college?).

The college surveys carried out over two academic years indicated that there had not been a great deal of success in raising basic ICT skills and are somewhat inconclusive in resolving the lack of ICT integration into teaching practice. Staff, although making some progress, voiced similar concerns to those observed in the Becta literature review and summarised using the following table.

External Barriers	**Internal Barriers**
Lack of access to resources	Lack of confidence
Lack of time	Resistance to change and negative attitude
Lack of effective training	No perception of benefits
Technical problems	

Table3: Summary of barriers to effective ICT use taken from Becta review of literature.

EVALUATION

The Becta review observes that teachers are sometimes unable to make full use of technology because they lack the time needed to fully prepare and research materials for lessons, particularly where this involves online or multimedia content. Time is also needed for teachers to become better acquainted with hardware and software. (Phelps, Graham & Kerr, 2004).

This factor appeared to be significant in the FE college survey (55% would like more development time) but coupled with a skill audit indicating some basic ICT shortfalls and little evidence that staff development is working; a more radical solution than merely reviewing allocated teacher hours for contact and development needs is called for. One approach is to consider invisible, everywhere computing that does not only live on a personal device, but is in the environment everywhere (M van't Hooft; 2006). A ubiquitous computing

strategy within colleges would therefore offer the teacher access to resources as part of the learning environment. ICT would become as pervasive as paper resources and form an integral part of the teaching strategy.

This however, has some impact on one of the Becta findings; technical faults and support of ICT equipment leads to lower levels of ICT use by teachers. (Bradley and Russell, 1997; Cuban, 1999; Preston et al.., 1999).

Any radical change to ICT approaches would require an ICT strategy that included both technical expertise and a suitable digital repository supported by educationally competent researchers and developers (for example an e-learning support team?). However the subsequent effectiveness of integrating ICT into the learning environment would be immense.

On the other hand would such an approach fuel the Becta observation that resistance to change is a factor which prevents the full integration of ICT in the classroom. The literature review saw this resistance in terms of teachers' unwillingness to change their teaching practices, and also in terms of schools as institutions finding it difficult or being unable to re-organise in ways which facilitate innovative practices involving ICT. (Albaugh, 1997; Cuban et al.., 2001.). As a solution, and in line with a ubiquitous approach, it might be advantageous to consider a suitable redesigned desktop interface for teachers that is more meaningful and discipline related. Non IT teaching staff did indicate during follow-up discussions, that some had a fear of "computing" screens and this acted as a barrier to use. Producing an intelligent or intuitive icon based desktop, linked to tasks familiar to the user, would alleviate a number of the more technical aspects of PC operation.

File management could be represented by a filing cabinet. E-mail becomes a contact icon that is easy to operate and notes can be saved using notelets etc.

Figure 4: A teachers desktop using icons (widgets)

Both the Becta review and the college survey supported the premise that there is little evidence to support the statement that age affects levels of teachers' ICT use. Younger teachers are no more likely to make use of ICT in their work than their more experienced colleagues (Bradley and Russell, 1997). On the other hand the college survey did not support the Becta

findings that there is some evidence to suggest that teachers' gender has an effect on the degree to which they use ICT, with male teachers making more use of ICT than female teachers, and with female teachers reporting greater levels of computer anxiety than male teachers. (70% of the positive IT responses in the college survey were female and of a wide age range).

CONCLUSION

The literature review and the college survey covered a great deal of ground, only part of which has been summarised in this paper. However some important issues have been raised for a small to medium Further Education College. In the past the integration of ICT into a diverse curriculum has been attempted to be resolved by approaching the issues through staff development programmes.

This paper therefore proposes an alternative strategy for ICT integration. It is suggested that the college considers working towards a much more ubiquitous environment for ICT use.

In 2008, this FE College is moving into a new building and consequently has the opportunity to review its ICT strategy in an innovative and radical way. ICT should be seen as a resource available everywhere. The creation of a building wide wireless environment, with relevant devices available to both staff and students would allow the integration of ICT as a pervasive transparent resource.

In addition the college might consider the need for ICT support in a similar way to that of student services or reprographic services and create a support network that provides content to teaching staff in a digital format easily and readily available over a college wide network – whether that is via a virtual learning environment or some other arrangement using digital repositories and access facilities. The current trend towards collaborative learning and the development of ICT as a social toolkit offers the opportunity for establishments like FE colleges to grasp the technology and create a much more exciting interactive learning world.

Discussions with teaching staff seem to indicate that lack of effective training is not a major issue. What is more predominant is the lack of time to explore the use of ICT as well as a lack of confidence in using ICT resources. In addition to providing teaching staff with relevant digital material as discussed above, further research should be undertaken in exploring the sort of ICT interface teachers would like in order to eliminate the technical feel to ICT screen based resources. A teaching or learning gateway for staff that provides an interface that is simple, easy to use and relevant to

their everyday needs seems to be an effective solution for engaging the non ICT user. Could the college develop a desktop for teachers that provides access to all the resources needed to undertake their teaching and learning roles. This might take the form of simple icons that are meaningful and relevant or even a partitioned screen which reflects the sorts of tasks with which teaching staff are engaged.

In conclusion, this paper has reinforced the findings of the Becta literature review but raised some questions surrounding the internal barriers to ICT use surrounding teachers perceptions and aspirations.

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2 THE USE OF WIKIS TO ENGAGE FE STUDENTS

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Abstract

The projects surrounding this research include two diverse groups of FE students; a group of work based learning students and a group of Chemical Technology Foundation Degree students working on an assignment in collaboration with a local employer.

The use of a wiki to engage the students in collaborative work was initiated in order to encourage group dynamics and to test the ease of use of such social software tools and its relevance to FE teaching and learning. The study involved FE staff members who were non ICT literate and this created a number of issues surrounding the use of Web 2.0 techniques. The project manager was involved in raising awareness of eLearning methodology and the way staff could blend technology into their teaching and learning strategies.

The study explored the value of the wiki approach in engaging external users such as local employers. A range of wiki tools were evaluated and an assessment of their use developed in order to propose a future direction for social software acquisition. Issues such as using RSS feeds like YouTube, MySpace etc have been problematic and a solution will need to be developed if the college is to take full advantage of the developing internet community.

The use of wikis has proved to be interesting but early indications demonstrated that students enjoy such tools in a social environment but are less than enthusiastic to engage with the software in a learning environment. Traditional teaching and learning methods have become acceptable to both staff and students and the introduction of a wiki culture, allowing freedom of content development, was less successful than anticipated. The enthusiasm of a group's tutor played a significant part in engaging students in this technology. The project appears to conclude that wikis have a place in FE but the introduction of a net-generation culture is probably vital to such an approach.

Background

.A typical college curriculum incorporates the need for valid ICT and information literacy skills no matter what discipline area is taught. Such an approach has raised the question of what currently constitutes a learning environment (Pelgrum, 2000). In recent years there has been an increase in the availability of computer hardware and software in colleges and most now operate a virtual learning environment (VLE) to support the learning process. (Mumtaz, 2000).

However it is also increasingly clear that having access to the technology does not necessarily mean that it will automatically be integrated as a resource within teaching strategies. This could be partly due to an uncoordinated approach which has not encouraged effective policies or planning to take place. (Fabry and Higgs, 1997; Manternach-Wigans et al, 1999). On the other hand, it is also evident that much of the problems surrounding the lack of meaningful integration could be attributed to the lack of awareness or lack of confidence on the part of teaching staff. (Dawes, 2000; Larner and Timberlake, 1995; Russell and Bradley, 1997.)

Successful integration into the curriculum depends on teachers being convinced of the relevance of ICT to provide access to a broader relevant range of resources for themselves and students. (Cox, M., Preston, C., Cox, C; 1999). The potential impact of informed and effective use of ICT as a classroom resource has far wider implications than merely enhancing the immediate learning experience. (Harrison, C.et al; 2002).

This paper forms part of an on-going study into ICT integration and the development of blended learning models for a new college build in a medium sized North East Further Education College. The impact of Web 2.0 technologies is seen as an important feature of this blended approach. The research is also part of a wider study to explore the development of an integrated knowledge system in the college based around the concept of a portal to communicate applications and management information and where ICT is a vital but transparent element in management practice.

Theory

Marc Prensky (2001) states in his *Digital Natives, Digital Immigrants* paper.

"Today's average college grads have spent less than 5,000 hours of their lives reading, but over 10,000 hours playing video games (not to mention 20,000 hours watching TV). Computer games, email, the Internet, cell phones and instant messaging are integral parts of their lives".

Prensky sees today's students as digital natives who think and process information fundamentally different to their predecessors. One technology which is claimed to enable this change is the wiki, a web based interface where information is not fixed but malleable and adaptable to meet the needs of participants. Ferris, S., and H. Wilder. (2006) advocate the use of wikis as a teaching and learning tool but state that their utilization in the classroom requires thoughtful and deliberate planning as well as creativity and enthusiasm in order for educators to achieve the most effective and appropriate instruction.

This study hoped to determine if similar issues related to FE students and that wikis were applicable in creating a learning environment appropriate to students engage in work based activities with external agencies such as employers..

Method

The initial approach to this study involved the review of texts that would indicate best practice in the use of social software tools such as wikis. Ferris, S., and H. Wilder. (2006) observed that it was interesting that even though we had entered a new digital age, it has had a slow rate of impact on teaching given the unprecedented and dramatic impact of these technologies on society and industry. How did this relate to an average FE College? In order to determine some benchmark of ICT activity in the college, a survey of some 150 staff regarding their ICT skills and current practice within a vocational FE college was undertaken. Once a model of current practice had emerged, a study was undertaken to determine how effective the use of wikis would be within specific groups of FE students.

Contribution

The factors supporting the successful use of Wikis

Kopyc, S. (2006) observes an image of technical competent students wandering our text-dominated landscape by citing from the title of Farris-Berg's report (2005) for Education/Evolving, an initiative interested in student views about education. This report combines and summarises research on student attitudes, perceptions, and behaviours with regard to using digital technology, particularly for learning purposes. Kopyc comments that the Farris-Berg report indicates student awareness of the role technology plays in changing and shaping how they learn, but also that these students voice their teachers' use/non-use of technology in teaching. Kopyc claimed students want “challenging, technologically oriented instructional activities" and, Kvavik's research (2005) states:

“The interactive features least used by faculty were the features that students indicated contributed the most to their learning. The students were especially positive about sharing materials with students (38.5 percent), faculty feedback on assignments (32 percent), and online readings (24.9 percent).”

The research goes on to indicate that “students claim their schools and teachers have not yet recognized the fundamental shift occurring in the students they serve and in the learning communities they are charged with fostering” , Kopyc, S. (2006).

What is causing this discourse? Are academics engaging with technology to cultivate the skills necessary to meet the needs of a techno-generation of students? Kopyc addresses this using the philosophy of Lehigh University (2006):

"The University as a whole is a laboratory in which faculty, staff, and students work and experiment together.

While we as computing staff, faculty, and administrators may not be there yet, the net generation students have arrived, and their increasing expectations for e-learning cannot be easily dismissed.”

Would the development of a collaborative culture in an FE college enhance a student’s learning experience? Are FE lecturers technically aware of the changes needed within their teaching strategies?

To answer these issues, studies on staff ICT skills, their use of course management tools (Virtual learning environments) provided an understanding of where the college stood in terms of developing the next generation of teaching styles.

The college perspective

As part of the college's blended strategy it was necessary to establish what level of engagement staff had with basic ICT. Without this knowledge, how could the college move forward in encouraging the integration of ICT into the teaching and learning environment? A staff audit indicated a shortfall in some very basic skills and this was addressed by specific staff development programmes covering a range of topics that reflected the needs.

- Accessing College VLE and Intranet.
- Blackboard familiarisation.
- Powerpoint.
- Email from home.
- Interactive whiteboard use.
- File Management.

Table 1: Staff development programme based on skill audit

The claim that levels of confidence and therefore levels of ICT use are directly affected by the amount of personal access to ICT that a teacher has (Ross et al., 1999; Cox et al., 1999; Guha, 2000), the amount of technical support available (Cuban, 1999; Bradley and Russell, 1997), and the amount and quality of training available (Pina and Harris, 1993) was supported within the college when a sample population of the skill audit were interviewed regarding their needs.

A college VLE survey provided the breadth of involvement staff had in differing programmes of study. Lecturers teach on a minimum of one and a maximum of five programmes, with 50% staff teaching on four or more of these courses. When determining their roles in such programmes, the survey indicated that the vast majority of these teachers (65%) acted as both course leaders and/or tutors. VLE usage statistics showed that although the college had over 1000 unique courses, less than 200 had active VLE presence.

How could the college improve VLE involvement? 55% of staff surveyed felt they did not have time to develop resources whereas 40% would like better access to ICT equipment. Only 5% of staff wanted ICT staff development time.

The college surveys, carried out over two academic years, seemed to indicate that there had not been a great deal of success in raising basic ICT skills and was somewhat inconclusive in resolving the lack of ICT integration into teaching practice. Staff, although making some progress, voiced similar concerns to those observed in a Becta literature review (Scrimshaw, P. (2004); Becta (2004)) and can be summarised using the following table.

External Barriers	**Internal Barriers**
Lack of access to resources	Lack of confidence
Lack of time	Resistance to change and negative attitude
Lack of effective training	No perception of benefits
Technical problems	

Table2: Summary of barriers to effective ICT use taken from Becta review of literature

Would the evolving Web 2.0 culture be feasible in such an FE environment? Since the college was moving to a new site designed to be technology based, it was vital to engage staff in some research using social software tools in order to determine where the college was in developing a new net-generation culture.

Several sample groups were selected for a range of trials using wiki technology. These groups included:

- Travel and Tourism students working on research about holiday destinations.
- Work Based learning groups in a variety of disciplines (Business administration, teaching assistants etc.)
- Foundation Degree students studying Chemical Technology.
- Local school children (year 10s) on an increased flexibility programme studying eMedia.

These groups were selected because the tutors involved in delivery had some interest in developing ICT integration, even though some staff participants were not very ICT literate.

All the selected courses had an active presence on the college VLE (Blackboard) and hence students had some experience of using internet based resources.

The wiki software used in the trials was based around hosted sites using a free service provided by http://www.wetpaint.com.

Funding was not available during the trial period to obtain appropriate Learning Object building blocks for Blackboard but since the research was designed to test the validity of wikis, the platform was not considered a barrier.

Evaluation

The wiki trials were conducted over a four month period, although some groups have an on-going commitment. Initial induction to the wiki software with both tutors and students created no technical problems. Staff and students were familiar with the college VLE and access to the wiki was instigated via a hyperlink within their course area. Activity on each wiki was monitored over the trial period and followed up with appropriate feedback from staff and students.

The use of wikis varied significantly between groups. In the case of Foundation Degree students, the tutor used the wiki as a means of collaborating with students on an assignment which involved a chemical industry problem initiated by a local employer. The web space was used as a brainstorming tool between staff, employer and students. Although the tutor used Blackboard as his course resource area, he also used the wiki to elaborate on particular issues within the assignment. This approach seemed to support Ferris, S., and H. Wilder's. (2006) observations that the use of wikis requires thoughtful and deliberate planning as well as creativity and enthusiasm.

In contrast the use of wikis in the work based learning environment did not result in much success. A group of enthusiastic tutors planned a wiki site that would allow students facilities to develop their work based evidence. This activity was in fact a simple eJournal, but offered students the opportunity to collaborate with each other and interact with the assessor during the four days they were at their employment base.

A group of teaching assistants (aged 16-19) were considered to be ideally placed to take advantage of this initiative. The results however were somewhat disappointing. All these students preferred face-to-face contact with the tutor and continued with text based evidence when they attended college on the fifth day. Could the differences in approach be age related? Most of the work based learning students were recent school leavers and seemed to have expectations that written work was the norm at college.

However some collaboration between the group and assessor did take place , but outside the working day and by means of mobile phones and text messaging. A similar experience was observed with the group of Travel and Tourism students where most returned to text based work after an initial flurry of enthusiasm on the web based approach. What was interesting in all these trials was the engagement of a group of 14 year old school pupils who used a wiki effectively to develop both content and skills in web animation. In this case students (a group of 12) worked collaboratively both in college and outside college to develop their wiki. All these students became involved and developed their understanding of web animation in a very positive manner.

Conclusion

The use of collaborative tools such as wikis has not been a conclusive success. Careful planning by creative and enthusiastic tutors seems to have a positive effect on student engagement, but it could be argued that success is more dependent on whether the institution has a net-generation culture rather than a print based one. (Ferris, S., and H. Wilder. (2006)):

“Although the impact of electronic and cyber technologies on teaching has been studied by many scholars from McLuhan (1962) to Papert (1994, 1999; Papert and Friere 1980), few scholars have noted a change in the dominant print-based teaching paradigm.”

Activity amongst students varies significantly. Some collaborated well using the social software, but others deliberately avoid its use and reverted to a paper based methodology. Successful use of wikis was predominant with groups whose learning environment was significantly electronic or web based. Creating the net-based environment seemed to enhance the interaction.

Further studies are obviously necessary to determine the reasons behind these results. College staff have grown up with a dominant print-based model and any progress towards a new net-generation culture may require “nurtured coercion.”

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3 COULD PLEs BE THE FUTURE – FROM INSTITUTIONAL TO STUDENT CONTROL?

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Abstract

This paper explores the current use of VLEs within a FE College in order to determine how staff and students are engaging with them as part of teaching and learning strategies.

The recent development of personal learning environments (PLEs) is discussed with regard to how these fit within the rapid growth in Web 2.0 technologies. The paper indicates the need for further investigation into alternative solutions to the problem of student engagement and suggests a more student-centred approach involving the creation of appropriate resources to allow students to adapt their learning requirements in a digital media that includes ePortfolios.

The paper concludes that efforts to improve VLE use have not been successful and since we are experiencing a shift towards the more non-compliant student we need to address the change in a positive way.

Keywords

VLE, PLE, Web 2.0, social networking, collaboration, teaching and learning.

1. Introduction

Educational institutes have, for some time, used virtual learning environments (VLEs) as a means of engaging students with learning content. A Virtual Learning Environment can be defined as a software system that supports learning and teaching within the educational setting.

These VLEs traditionally work across the Internet and provide users with a collection of tools for assessment, communication, content sharing, return of students' work, and the administration of student groups. A range of VLE software is available and educational establishments have a variety of suppliers.

In recent years there has been a significant change in the use of the Internet. Social networking sites have grown tremendously creating a web that is changing in look and feel. The interactive web has resulted in the term Web 2.0 which encompasses a variety of meanings but with an emphasis on user generated content, content sharing and collaboration.

This change in emphasis raises the question of how educational establishments manage their resources for teaching and learning. If the web is becoming a data sharing and collaborative place, then where does the current style of VLE fit in? An increasing number of suppliers are offering hosting facilities with many free. Individuals can create their own virtual environments in the form of Personal Learning Environments (PLEs) which can be generated in a format determined by the user.

If this functionality is available, then what should educational institutes do in order to engage with such facilities? This paper explores the current trends in Web 2.0 technology and the increasing use of PLEs as a learning tool for students. Should we be creating an environment for students to store, to share and collaborate their learning resources, and ask the question whether VLEs have outgrown their usefulness?

2. The interactive web and students (Web 2.0)

Mark van Hamerlen [10] makes an observation that the introduction of Web 2.0 technologies is helping change some characteristics of current and future student cohorts. It could be argued that these changes may necessitate profound changes in learning and teaching methods [1].

Mark van Hamerlen [11] cited the work of Marc Prensky [9] and describes his definition of 'digital natives' as "a generation that has grown up with digital technology, operating at "twitch speed", and performing multiple activities simultaneously". Van Hamerlen also quotes from part two of the same article that Prensky claims that changes in activity during development may ("almost certainly") have resulted in different neural wiring via processes of neuroplasticity. Prensky claims that digital natives have acquired different ways of thinking, thanks to different cultural practices. Prensky proposes that while digital natives have shorter attention spans, and less ability to reflect on topics, they instead have greater visual skills, the ability to concentrate on different media simultaneously, and the ability to monitor changes and make inductive discoveries.

There is some debate over Prensky's claims but what is evident is that current students in FE/HE are entering study with a different background of skills. This can be summarized by the observations made in Oblinger and Oblinger work [6]. They define the following characteristics of the new net generation students as:

- digitally literate,
- highly Internet familiar, connected via networked media,
- used to immediate responses,
- prefer experiential learning,
- highly social,
- prefer to work in teams,
- craving interactivity in image rich environments, and
- having a preference "for structure rather than ambiguity".

Oblinger and Oblinger offer the premise of a different kind of student, one who is non-traditional and working at the same time as studying. While their description is US-oriented, this profile is becoming more evident in our UK HE establishments. If these new student skills and study preferences are significant, should we not explore different teaching and learning methods? Should we be exploring new ways of allowing students to use these incoming skill sets? Will the changing profile of students change the way we deliver programmes and facilitate learning?

Mark van Hamerlen [11] proposes some anecdotal evidence that, there are different perspectives relating to student engagement (and therefore grades and retention). He indicates:

- There is a recent case of a university teacher switching his instruction to a social medium (FaceBook or MySpace) because the teacher's students would not engage with the traditional VLE. Web 2.0 enabled approaches may therefore help engage with students.
- On the other hand, recent student interviews in a humanities school in a UK University revealed that students were not concerned how they are taught (e.g. through lectures, seminars, or through a blended learning approach) so long as the instruction was good. This then raises the question of "what is good practice in learning and teaching in different modalities?" So recent in fact that the academic commissioned to interview students has not even presented these results to the school concerned, precluding dissemination of the name of the particular school and university.

3. The future of learning environments

3.1 A changing population

Just when VLEs appear to be acceptable and stable, Web 2.0 appears and the whole concept of resource access and interactivity has been turned upside down. The Web 2.0 concept that is growing at a tremendous rate is highlighting the limitations of current VLE technology. Web 2.0 has not been a revolution, but more a necessary evolution. Technically there is not much new about Web 2.0, but it demonstrates a change in how technology is perceived and used. Innovative combinations and uses of technology seem to occur all the time under the Web 2.0 banner.

O'Neill, G and McMahon, T [8] made comment that

> "The changing demographics of the student population and the more consumer/client-centered culture in today's society have provided a climate where the use of student-centered learning is thriving"

Downes [5] in one of his famous blogs similarly commented that "learning is characterized not only by greater autonomy for the learner, but also a greater emphasis on active learning, with creation, communication and participation playing key roles, and on changing roles for the teacher, indeed, even a collapse of the distinction between teacher and student altogether."

The following section is intended to offer an alternative teaching and learning approach that is being explored within an FE/HE college where traditionally VLE and ICT have played a major role in course delivery but with limited success. The concept of Personal Learning Environments is therefore discussed as a learning tool for the future.

3.2 Personal learning environments

Personal Learning Environments (PLEs) can be described as systems that help learners take control of and manage their own learning. This includes providing support for learners to

- set their own learning goals
- manage their learning; both content and process
- communicate with others in the process of learning

A PLE could contain one or more subsystems: It may be a desktop application, or a combination of one or more web-based services [10]

Important concepts in PLEs include the integration of both formal and informal learning into a single experience, the use of social networks across institutional boundaries, and the use of networking protocols (Peer-to-Peer, web services etc.) to integrate a range of resources and systems within a personally-managed space.

According to Donald Clark [3], tens of millions of people have PLEs. Hardly any of them see it that way – for example:

MyYahoo	*50 million*
MyMSN	*12 million*
Google personalised homepage	*10 million*
Netvibes	*10 million*
Etc	

The concept of the 'personalised homepage' with calendar, alerts, links, feeds, news, to do lists, weather, stock prices, gadgets and knowledge sources is fast becoming commonplace. The point Clark makes is that the learning is part of the doing – "it's next to your calendar and things to do list. It's part of your everyday life".

Clark also proposes that such PLEs conform to needs as a person and learner, The individual does not have to conform to the system, it conforms to the individual. These tools give a sense of freedom and control. VLEs or LMSs or other top-down content management systems do not offer this. Clark feels that an LMS/VLE is teacher-centric about push and top-down control and dissemination. Clark claims that content is no longer institutional – it's increasingly abundant and free.

Clark advances the suggestion that we are now witnessing the death of the compliant learner, and that learner control and freedom are essential. The

contributing student is the future and PLEs along with Web 2.0 offer the mechanism.

4. Case Study (Pilot)

4.1 Method

This pilot study forms part of an on-going investigation into the use of Web 2.0 technology within the teaching and learning environment. The investigation will form part of a strategy to develop new ways of delivering programmes across the campus.

4.1.1 Participants

This study involved some 40 students on two separate courses. One a Media programme and the other a Foundation Degree. The control group consisted of 18 IT Practitioner students. Students and staff had access to both the VLE and a range of Web 2.0 tools.

4.1.2 Procedure

Over the last two years, a range of investigations have been carried out to determine the extent that ICT and VLEs were used within teaching and learning [4]. This study was a review of how staff were embracing the use of Web 2.0 tools and how the use of such technologies could be further developed.

Having determined a broad understanding of the use of ICT within the institution, it was necessary to explore how tutors could enhance their practice using some of the latest tools available in the form of Web 2.0 technology. Two programmes were selected to investigate. Tutors on these programmes were enthusiastic about using new approaches and it was felt that a comparison to other areas not engaging with such techniques would provide some insight into the way forward.

The two groups selected consisted of a media class of 21 school children aged 14-16 studying a range of media applications (animation, web design and movie making). The other group consisted of 15 Foundation degree students studying Chemical Technology. Both groups were given support in setting up VLE (Blackboard) material and Web 2.0 tools as appropriate.

The control group for the study consisted of 18 students on a first year IT Practitioner's programme. Feedback from students and staff was collated during the study and at the end.

Analysis of VLE access activities would provide data on how students related to their learning environment and coupled with relevant feedback on their learning experience would provide some indication of how students were interacting with the technology available.

4.2 Results

Previous studies on the use of ICT in teaching and learning found that when asked what VLE presence their courses had, 75% of staff indicated they had resources uploaded on the VLE, 20% did not but would like to upload material. In contrast, 5% indicating they did not want to use VLE technology at all.

VLE usage statistics showed that there had been only a slight increase in both staff and student use since September 2006.

Earlier studies have concentrated on how the college could improve VLE involvement. 55% of staff surveyed felt they did not have time to develop resources whereas 40% would like better access to ICT equipment. Only 5% of staff wanted ICT staff development time [4]. Attempts to improve VLE use and engage students consistently seem to fail and it could be argued that an alternative approach was necessary.

Analysis of the two group's usage of VLE facilities compared to a control group provided some interesting observations. The following tables show a summary of access activities by group.

Foundation degree students	% of hits
Announcements	44
Personal Information	1
My grades/tasks	1
e-mail	2
Collaboration	3
Content	0
Communication area	12
Dropbox	1
Tools	5
Discussion Board	16
Messages	12
Other	3

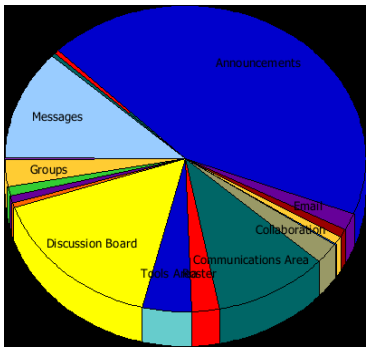

Table 1 Breakdown of VLE access activities for Foundation Degree students (Sept 07 – May 08)

Media Students	% of hits
Announcements	15
Personal Information	0
My grades/tasks	0
e-mail	2
Collaboration	1
Content	0
Communication area	14
Dropbox	8
Tools	4
Discussion Board	15
Messages	37
Other	4

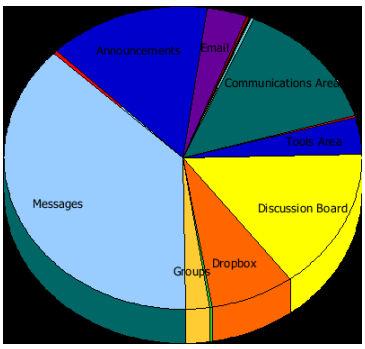

Table 2 Breakdown of VLE access activities for Media students (Sept 07 – May 08)

IT Practitioner Students	% of hits
Announcements	41
Personal Information	0
My grades/tasks/Gradebook	33
e-mail	1
Collaboration	1
Content	0
Communication area	2
Dropbox	9
Tools	8
Discussion Board	1
Messages	4
Other	0

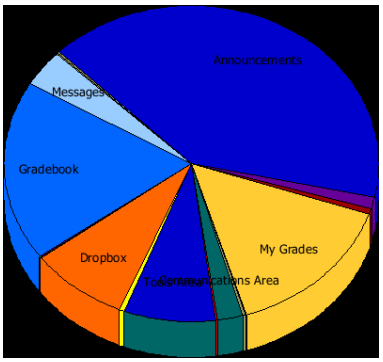

Table 3 Breakdown of VLE access activities for IT Practitioner students (Sept 07 – May 08

What appears to be indicated by the data collected over this period is that students are predominantly using the college VLE for social and learning networking. Even in the case of the control group, most student activity fell under the networking banner. Hardly any content access was recorded. This implies that our use of VLEs should be questioned.

Feedback from students indicated that course material was only accessed on Blackboard when it related to either coursework or was useful for revision purposes. Most were happy with face-to-face content delivery and indicated that the latter provided sufficient background knowledge for progression on the course. Collaboration between students again related to coursework and communication with tutors on content and style issues.

All groups used electronic transfer of documents (dropbox), especially within the ICT based courses where tutors had implemented electronic assessment techniques. The impact of electronic assessment was evident in the case of the IT Practitioner group who accessed their gradebook frequently (33% of hits). All students however, accessed the announcement section regularly, since this was the major means of tutor communication to various groups.

The use of wikis, podcasts and video material only seemed to provide added interest for students and did not offer any evidence of improved learning.

What it did offer staff was a new way of communicating to their group and provided a fresh look to their course. Web 2.0 technologies have rapidly become a part of many students' lives and this could be a reason why the networking aspects of VLEs were predominantly used.

5. Conclusion

The limited appeal of current VLE facilities and a poor staff and student engagement has resulted in a series of investigations to seek alternative solutions. Attempts to improve VLE and ICT use in teaching and learning have not been successful. VLEs are consistently used as lecture material repositories with little or no student interaction unless resources are assessment based. Institutes are seeing a shifting student population who are very much non-compliant and this seems to indicate the need for a new and more dynamic approach to learning environments.

An investigation into the access activities of the college VLE seems to indicate that students use facilities mainly for social or learning networking reasons. Collaboration and communication activities form the major basis of VLE use. Since the VLE is mainly controlled by the institution for the dissemination of course resources, it was surprising to see that this aspect of VLE use was very limited. Two courses were given access to Web 2.0 technologies in the form of wikis, podcasts and video material. However no great improvement in learning was determined, but students did express that these tools provided and added interest to the course. Providing students with facilities to organize their own personal learning environments and access to tools for such an approach would help create a more integrated and dynamic environment that improves the integration of learning within their daily lives.

A further investigation into the development of personal learning environments is proposed to follow this pilot study in order to determine what form the learning environment should take. It is suggested that this approach would result in the creation of an adaptive personal environments integrated with assessment in the form of ePortfolio development. The use of third party solutions or the integration of add-ins to the college VLE would need to be investigated. The question of security and support however is an issue that will be considered, but a shift towards student centred control from institutional control is rapidly becoming a viable option.

There are many options but what is reasonably consistent is that an ideal set of tools would contain shared file storage, organiser, search and bookmark tool, messaging or chat facilities and a media centre for audio, video and digital pictures. Access to web space and the means to create an ePortfolio are other desirable tools or facilities.

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4 POSTER

Teesside University FE in HE Conference 2007

The Use of ICT to Support Learning in FE

Background

Preston & Cleveland College has, over the last twelve months, undertaken a series of projects to explore the use of ICT in teaching and learning. This approach is part of a planned programme into a new college building that will support some of the latest technologies for teaching and learning. Projects completed or in progress have included:

- The development of collaborative learning environments that have included the use of Web 2.0 technologies in a number of disciplines (Wikis, podcasts and video casts)
- Increased use of a college VLE (Blackboard) as an interactive student resource rather than a material repository
- The use of digital media in construction, Business Administration, students with disabilities and others.
- The use of virtual worlds as a teaching aid (Second Life)

Issues

Surveys of current staff at P&CC indicated that the college had a high perception of ICT literacy (2006). Some were claiming its future ICT skills were poor for integrating the technology into their teaching styles.

The college VLE was populated with less than 50% of courses and those showing in persistence were, in the main, using the environment as an outside material repository.

Staff indicated that they did not have time to develop new approaches to their teaching strategies and they also complained of poor access to ICT resources.

Since the college was moving towards a digital media environment in less than twelve months, these issues needed to be addressed.

Solution

In order to engage staff in moving towards the integration of ICT into their teaching environment a series of staff development programmes and specialist projects were developed.

It was hoped that by engaging staff in simple but effective use of ICT this approach would encourage the cascading of good practice throughout the college.

As staff saw the effective use of some technologies, they would be encouraged to try and link their practice in a more positive way.

Evaluation

All of the projects undertaken to date have given excellent results. Students and staff have been enthusiastic and positive in what has been achieved.

The project manager for these initiatives has seen increased interest in staff trying new approaches to ICT integration and the number of staff requesting support has been an encouraging increase over the last year.

Did it go as Anticipated?

The introduction of Web 2.0 technologies has worked well. Staff and students have engaged with the concepts and delivered the technology forward with the results that the learning experiences of students involved has improved.

The creation of a more ICT literate staff mainly using materials has been less than successful.

Presence on Blackboard has improved, but the quality of material is still an issue.

Staff development has not been entirely successful in raising skills and the "planned sessions" approach needs to be revisited in order to ensure those staff are trained in basic ICT skills.

The success of Web 2.0 technologies has been encouraging. Staff involved in collaborative teaching styles have reported improved student motivation and ownership of course content.

The above success has been an incentive to students and a great proportion of staff who are now seeking ICT support in developing their use of ICT.

Advice for Staff

Social networking tools do work, but it requires staff to create a new collaborative culture within their groups. Students are happy to use Web 2.0 technologies outside their college life, but tend to become less than enthusiastic within a teaching environment.

The timing of such applications is a focussed activity of short duration. Approved the engagement and well-constructed planning can create an exciting new teaching environment.

All successful projects have come from enthusiastic and committed staff members. Those who have not engaged have voiced concerns about lack of time or resources.

Further Development

The next stage in development is to trial the use of 3D virtual worlds as another platform for enhancing the learning experience.

We currently have Virtual Learning environments which have tended to become repositories for teaching resources. The future of 3D virtual learning environments would offer an exciting dimension to student learning that could support a new approach to course delivery not only on campus but also at a distance.

In addition the college is exploring the concept of global communication technology (VoIP).

Conclusions and Recommendations

The integration of ICT to support learning can be simple and effective. One such approach has been the introduction of Web 2.0 technologies (social networking – wikis, blogs, podcasts and videocasts).

Staff need support to see the potential of ICT in their particular discipline area. Success is not necessarily proportional to the amount of ICT. Learning can be enhanced by simple approaches provided the integration of ICT involves student interaction with the technology.

Before embarking on using ICT in teaching strategies, staff must see the advantages of investing valuable time in developing ICT applications as opposed to conventional methods.

UNIVERSITY OF TEESSIDE

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5 VLE Course Survey

Total Courses on Course File	1342
Active Course	113
Misc courses/tests etc	25

This survey investigates the current content active on R&CC Blackboard VLE There are 1342 courses listed on the college course file, but due to duplicate entries for courses delivered on multiple days, this is probably nearer 1000 discrete entries. The population of our VLE is therefore minmal (12%) and of these only around 30% are populated with resources, information and assessment material. The following sheets list those courses on the VLE as from 20 April 2007

Faculty	Division	Course	VLE Active	Created	Info	Resources	Assessment
Art leisure	Hair & Beauty	Hair and Beauty (generic all courses)	Y	27/01/2006	Y	Y	Y
	Visual Art, Sport, PS	BTEC National Award in Travel & Tourism	Y	08/02/2006			Y
		BTEC National Certificate in Public Services	Y	08/02/2006			
		BTEC Nat Cert Travel & Tourism	Y	07/02/2007		Y	
		BTEC Nat Dip Travel & Tourism	Y	07/02/2007	Y		
		BTEC First Diploma in Public Services	Y	18/04/2006		Y (min)	
		BTEC Nat Dip Art & Design	Y	20/12/2005	Y	Y	Y
		BTEC Award in Public Services	Y	22/02/2006	Y	Y	
		Security Guards	Y	19/10/2006	Y	Y	Y
Built Environment		Carpentry & Joinery	Y	01/12/2006	Y	Y (min)	
		Foundation Construction Certificate	Y	29/11/2006	Y	Y	
		BTEC National Construction	Y	23/11/2006	Y	Y (min)	
		Painting & Decorating	Y	27/02/2007	Y	Y	Y
Business IT	Computing IT	C&G 7262 for IT Users	Y	21/09/2005	Y	Y	Y
		C&G 522 ICT Systems Network+	Y	01/10/2006	Y	Y	Y
		DiDA	Y	12/01/2006	Y	Y	Y
		BTEC First Diploma in EMedia	Y	19/09/2005	Y	Y	Y

Faculty	Division	Course	VLE Active		Info	Resources	Assessment
		BTEC National Diploma in Emedia	Y	19/09/2005	Y	Y	Y
		Btec National for IT Practitioners	Y	14/09/2005	Y	Y	Y
		ECDL	Y	12/01/2006	Y	Y	Y
		ECDL Advanced	Y	14/07/2006	Y	Y	Y
		BTEC Entry ICT	Y	27/01/2007	Y	Y	Y
		OCR A+	Y	12/10/2005	Y	Y	Y
		TROCN Advanced PC Maintenance	Y	10/02/2006	Y	Y	Y
	Business, Admin	AMSPAR Intermediate Diploma in Medical Reception	Y	01/02/2006	Y	Y	Y
		BTEC Introductory Diploma in Business Retail & Admin	Y	16/09/2006			
		BTEC National Award in Business	Y	08/02/2006			
		BTEC National Certificate in Business	Y	08/02/2006			
		Certificate in First Line Management	Y	08/02/2006			
		Diploma in Management Level 4	Y	08/02/2006	Y	Y	
		Certificate in Accounting with Computers	Y	27/02/2006		Y	
		NVQ in Accounting - AAT Foundation	Y	08/02/2006	Y	Y	
		NVQ in Customer Service	Y	07/02/2006			

Faculty	Division	Course	VLE Active		Info	Resources	Assessment
		NVQ In Accounting - AAT Intermediate	Y	08/02/2006	Y	Y	
		NVQ Level 3 Business & Administration	Y	09/03/2007	Y	Y	Y
		NVQ in Accounting - Technician	Y	08/02/2006	Y	Y	Y
		Level 3 Diploma in Admin	Y	04/10/2006		Y (min)	
		Level 2 Diploma in Adminstration	Y	07/02/2006	Y	Y	Y
Health care & Ed	Care Coun	Cache Child Care (Foundation)	Y	07/12/2006	Y	Y	Y
		Registered Managers Award	Y	07/12/2006			
		First Diploma in Care	Y	21/09/2006		Y (min)	
		BTEC 1st Dip Childrens Care,Learning & Development	Y	07/12/2006	Y	Y	
		BTEC First Dip in Care	Y	19/09/2005			
		Intro to Care	Y	21/09/2006		Y (min)	
		National Cert in Care	Y	21/09/2006			
		National Diploma in Care	Y	20/09/2006	Y	Y	Y
		AQA Counselling INTERMEDIATE LEVEL 2	Y	07/12/2006			
		Vocational GCSE Health & Care	Y	20/09/2006	Y	Y (part)	Y
		Certificate in Counselling - Connections (Day)	Y	07/12/2006		Y (min)	

Faculty	Division	Course	VLE Active		Info	Resources	Assessment
		Diploma in Counselling	Y	07/12/2006		Y (min)	
		Access to HE Nursing	Y	07/02/2006	Y	Y	Y
		NVQ Health & Social Care Level 2	Y	07/12/2006	Y	Y	Y
		NVQ Health & Social Care Level 3	Y	07/12/2006	Y	Y	Y
		NVQ Health & Social Care Level 4	Y	07/12/2006			
	EY and TT	MA Teaching Assistants	Y	13/10/2006	Y	Y	Y
		Teaching Assistants Certificate NVQ Level2	Y	29/09/2006	Y	Y	Y
		Delivering Learning 7302	Y	08/02/2006	Y	Y	Y
		Teaching Assistants Level 3	Y	29/09/2006	Y	Y	Y
		BTEC National Certificate in Early Years	Y	07/12/2006			
		BTEC National Diploma Early Years	Y	02/12/2006		Y	
		Foundation Degree in Early Years	Y	07/02/2006	Y	Y	Y
		VQ Support Work in Schools	Y	20/09/2006	Y	Y	Y
		NVQ Childrens Care Learning & Development	Y	07/12/2006			
		BEd	Y	02/02/2006	Y	Y	Y
		NVQ Health and Social Care (Child) Level 3	Y	07/12/2006			

Faculty	Division	Course	VLE Active		Info	Resources	Assessment
		Certificate in Education	Y	08/02/2006	Y	Y	Y
Engineering	Mech & maths	HNC Mechanical Engineering	Y	09/02/2006	Y	Y	Y
		BTEC First Diploma Operations & Maintena	Y	02/02/2006	Y	Y	Y
		BTEC National Cert in Mechanical Engineering	Y	23/09/2005	Y	Y	
		National Diploma in Engineering (Robotics	Y	09/02/2006	Y	Y	Y
		Foundation Degree in Chemical Technology	Y	22/09/2006	Y	Y	Y
		Engineering	Y	29/06/2006	Y	Y	Y
		IT for Overseas Students	Y	09/11/2006		Y (min)	
	Elect & Science	AS/A2 Biology	Y	12/01/2006	Y	Y	
		AS/A2 Chemistry	Y	31/10/2006		Y	
		BTEC NC in Electrical/Electronic Engineering	Y	09/02/2006	Y	Y	Y
		AutoCADF	Y	07/09/2006	Y	Y	Y
		HNC in Electrical/Electronic	Y	09/02/2007		Y (min)	
		HNC in Inst & Control	Y	09/02/2007		Y (min)	
		Food Safety in Catering	Y	07/12/2006			
Learning Support		Key Skills resources for staff	Y	22/09/2005	Y	Y	

Faculty	Division	Course	VLE Active		Info	Resources	Assessment
		Key Skills (generic)	Y	06/10/2006	Y	Y	
		Entry Level – Skills for Working Life - ICT	Y	13/12/2006			
		Certificate in Adult Learner Support	Y	14/03/2006	Y	Y	
		ESOL	Y	23/03/2006	Y	Y	Y
		BTEC Maureen	Y	01/12/2006			
		Dyslexia	Y	28/11/2006	Y	Y	
		BTEC Entry Resources	Y	07/02/2007			

Faculty	Division	Course	VLE Active		Info	Resources	Assessment
		Equality and Diversity	Y	23/11/2006		Y (min)	
		Learning Workshop	Y	22/03/2006	Y	Y	
		NOCN Level 2 Progression Award	Y	15/01/2007			
		OCR Certificate: Subject Support (Numeracy) L3	Y	21/02/2006	Y	Y	
		Level 3 Certificate for Adult Literacy Subject Support	Y	03/02/2006	Y	Y	Y
		Level 4 Certificate for Adult Literacy Subject Specialists	Y	03/02/2006	Y	Y	Y
A Levels	Humanities	As/A2 Geography	Y	12/01/2006	Y	Y	Y
		AS/A2 History	Y	07/01/2006	Y	Y	
		AS Law	Y	08/02/2006			
		AS/A2 Maths	Y	09/02/2006			

Faculty	Division	Course	VLE Active		Info	Resources	Assessment
		AS/A2 Rel Know	Y	06/02/2006			
		AS/A2 Sociology	Y	06/02/2007			
		A Level Tutorial	Y	17/11/2006	Y	Y	
		GCSE Maths	Y	07/02/2006	Y	Y	Y
		Access to Humanities	Y	20/09/2006	Y	Y	
MISC		Careers	Y	07/10/2006			
		First Diploma in Performing Arts	N	17/02/2006			
		National Diploma in Performing Arts	N	14/02/2006			
		Construction Staff Dev	Y	03/07/2006	Y	Y	Y
		FE Plus QA	Y	03/11/2006			
		LLP	Y	20/11/2006			
		LRC Information for Academic Staff	Y	27/01/2006			
		Health and Social Care staff development	Y	11/12/2006	Y	Y	Y
		Student Information	Y	23/05/2006	Y	Y	

Faculty	Division	Course	VLE Active		Info	Resources	Assessment
		Test using gradebook	Y	08/02/2007			
		Hair & Beauty Staff devel	Y	06/07/2006			
		Viewlett library	Y	09/11/2006			
		Wiki trial	Y	05/02/2007			
		ICT Staff Resources	Y	03/04/2006			
		JNC	Y	11/01/2007			
		Keyskills Tracker	Y	09/01/2007	Y	Y	
		Level 3 IT template	Y	20/04/2007			
		Schools Demo	Y	02/03/2006			
		Skills For Life Staff Resource	Y	24/09/2006			
		SKills for Life (Embedded	Y	09/12/2005			
		Blackboard Training	Y	04/01/2006			
		All Staff Information	Y	30/03/2006			
		St Peters	Y	12/01/2007			
		test using grade book 2	Y	08/02/2007			
		Train to Gain	Y	06/10/2006			

6 Collaborative Working

Creation of an E-Community within an Early Years Foundation Degree

Report by

George Corfield

Project Manager Blended Learning

September 2006

Contents

Introduction

Over the last few years there has been an explosive growth in the use of mobile devices, such as laptops, iPods, mp3 players and phones. These devices have become an integral part of our daily lives, yielding the new concept of 'infotainment'. However their benefit to us has not yet reached its full potential, particularly within formal education. A recent European study (www.m-learning.org) looked at the impact of using mobile devices to aid the learning of a group of young adults that had previously encountered poor experiences with education. The study showed a positive impact when their learning was supported by mobile devices. One of the reasons being that young adults are comfortable with mobile technology and find it an approachable medium.

This project proposes to incorporate the use of multimedia material targeted to a mobile device (iPod) within a group of Foundation Degree Early Years students and provide a study of the benefits provided to the students and staff. The objective will be:

1. To video selected lectures and tutorials and combine the footage in sequence with the accompanying MicroSoft PowerPoint slides using Macromedia Captivate or ScreenFlash. The resulting material will be made available to students on the college VLE (Blackboard) to download and view on iPods to enhance the virtual learning experience.

2. To increase the overall access to the lectures, the material will also be available in audio alone, with the aim for students to be able to listen to the lessons while on the move using iPods, MP3 players and even mobile phones. Providing the lessons in this manner will be of particular advantage to students with special educational needs such as those who have hearing or visual impairments that make following a lesson in a lecture hall a more difficult task. Furthermore, there are those that might find attending all lectures difficult, thus having the ability to follow missed lessons will be essential to them.
With the introduction of legislation (2005/06), Special Education Needs and Disability Order(SENDO/SENDA)

http://www.studentsupport.ulster.ac.uk/resource_tool.doc , this will surely become a vital educational tool.

Stanford University in California (http://itunes.stanford.edu/) has already introduced " Podcast" lectures. They have provided a repository for university-related audio content, making it easily accessible from the above website. This has shown the potential of this technology and the openness of students to engage with it.

Duke University has also trialled a Podcasting Symposium (September 27 - 28, 2005) http://isis.duke.edu/events/podcasting/archive.html. In the UK, Podcasting is starting to make initial inroads into enterprising departments, as described in the Times Higher Education Supplement (Feb 3, 2006). At Lancaster University, Professor Geraint Jones has trailed the technology for an Economics course, and provided recommendations on the length of each sound bite, and that the Podcast should provide the incentive of an 'additional' learning opportunity.
However this project will also take collaboration a little further and through the VLE media create a virtual E-Community of Foundation degree students with the introduction of "social software". The latter is simply the use of discussion boards (blogs) and collaborative authoring (wikis) - A **wiki** (pronounced <WEE-kee>[1]) is a type of website that allows the visitors themselves to easily add, remove and otherwise edit and change some available content. This ease of interaction and operation makes a wiki an effective tool for collaborative authoring. It is possible to use free software and hosting sites to create wikis and this will be trialled during the life of the project.

Project Detail

Overview

This project will be aimed at Foundation Degree students studying an early Years qualification linked to the University of Teesside. The aim is to create an E-Community and hence develop both communication and IT skills of students through the media of the Internet.

Collaboration will take the form of discussion forums, wikis and podcasting over an electronic communication media.
The use of iPods for data retrieval and storage (podcasts, video etc) will be trialled as a possible future enhancement to a student's learning experience.

Project Detail

Fd students usually attend part-time and apart from face-to-face sessions have little contact with other students. Part time HE students traditionally feel isolated and although part of the University have difficulty engaging with the wider educational experience. This project will explore the use of social software to enhance the learning experience and develop communication and IT skills amongst participants. Students will communicate primarily through the college VLE (Blackboard) but also participate in collaborative activities using electronic communication devices (blogs and wikis). In addition students will be given an iPod pre-loaded with college, University and course information with a view to using the equipment to download podcasts and videos relating to course content from the college VLE. The iPod device can also be used by students as a mobile electronic storage media.
The project does not involve the need for staff to develop specialist material although it is hoped that as time passes the group will embrace the VLE concept and become engaged with this form of communication.

Project Timescale

It is anticipated to commence development in October and create a range of activities that will engage students in the art of electronic collaboration. The project will run throughout the academic year and be evaluated at the end of the Spring term.

Conclusions and Recommendations

- The influence of **social software** (blogging, wikis podcasting, videocasting) appears to be central to the commercial world's approach. However we have experience of student resistance to getting involved in discussion forums on VLEs? Can we approach it differently? Can we incorporate this obvious fascination with sharing information into **collaborative learning techniques**? Do we encourage students to create their own communities and blogs/wikis as a means of enhancing the learning experience?
- There appears to be a future in mobile learning **(mLearning**), but at present this area is expensive for the educational sector. On the other hand many US institutions are "giving away" iPods to students pre-loaded with course and institute information and ready for students to download appropriate material from VLEs. Maybe we should invest £200 per student as a vehicle for motivating students to "connect" with eLearning?
- Rapid development of eLearning material seems to be a must for organisations. The US indicates that small bite-sized content that can be updated easily is better than investing in expensive professional material. The material should be produced in house using rapid development tools like Macromedia Captivate, ScreenFlash etc.
- A changing audience is changing eLearning requirements. Learners are now global thinkers, like working in "communities" (virtual or real), want broad knowledge and are happy to accept ambiguity. They can multi-task because they have grown up with a range of technologies (digital natives) and expect knowledge to be "just-in-time" not a sequential series of learning steps. We need to design our approach to meet these needs. As an academic and a digital immigrant this creates an issue with my teacher conscience, but maybe we need to explore the learner needs of our current and future population and adapt accordingly?

- Learning is changing and where, in the past, we created an environment that was insular, event driven, formal and based on content, it appears that we need to consider a much more global approach that embraces a “community” spirit, provides an informal approach to learning with emphasis on learners having access to content when and whenever they need it.

The challenges are great and the implications are that our learners of the future are going to demand from us a learning environment that will satisfy the digital world they live in. Our task is to explore how we can satisfy this within the bounds of educational economy. This project is an attempt to explore the feasibility of incorporating current technology into a teaching and learning environment in order to support learners as well as inform. The investment in equipment at this stage will provide valuable information for future course design and learning environments within the proposed new college environment.

Funding for the project

It will be necessary to obtain funding for the project in the order of £5- 5,500 for equipment and software. A breakdown of costs is indicated below:

Hardware and Software

There are currently 18 year 1 and 4 year 2 students. It will therefore be necessary to purchase iPods for this group and appropriate editing software for the proposed video material. The costs can be itemised as:

25 (approx) iPod 30GB	@£190 each	=	4750
3 X ScreenFlash	@£60 each	=	180
Wiki software	@ £200 approx	=	200
	TOTAL		**£5130**

George Corfield

September 2006

7 A Strategy for Blended Learning

Introduction

This document is presented to describe the proposed strategy for the development of blended learning projects over the coming year. The following sections introduce some of the terminology and outlines a strategy for development and some suggested areas of involvement.

What is e-learning?

- If someone is learning in a way that uses information and communication technologies (ICTs), they are using **e-learning**. This could be a student playing an interactive game; it could be a group of students collaborating on a project with others in another area of the college via the Internet; it could be students watching an animated diagram in the classroom; it all counts as e-learning. E-learning exploits interactive technologies and communication systems to improve the learning experience. It has the potential to transform the way we teach and learn across the board. It can raise standards, and widen participation in lifelong learning. When we combine the use of interactive technologies with traditional teaching methods we create what is known as **Blended Learning.**

Why is it important?

- There is e-learning already around us in schools, colleges, universities, community centres, in the workplace, and in the home. It is important because people are finding that e-learning can make a significant difference: to how quickly they master a skill; how easy it is to study; and, of course, how much they enjoy learning. The learning culture is changing rapidly and learners are starting to demand what is being termed, “just-in-time-learning”. That is accessibility to information or knowledge when and wherever they need it. It is important because it can contribute to raising standards; improving quality; removing barriers to learning and participation in learning; preparing for employment; ‘upskilling’ in the workplace; and ultimately, ensuring that every learner achieves their full potential. This approach is very much at the forefront of government thinking.

Why do we need a strategy?

- The problem is that although there is a lot of e-learning going on nationally and internationally, this college cannot achieve the real potential of e-learning until most people are using it. Only then can teachers share digital resources, or students link into their college learning environment. E-learning is not at present *embedded* in our teaching and learning, at any level. We need an e-learning strategy that moves us forward into a new era of teaching and learning.

What is the vision?

The Government is committed to an e-learning approach and in their paper "Towards a Unified e-Learning Strategy" (July 2003), stated the following very general vision:

- Empower learners – With more active learning, people of all ages could take responsibility for what and how they learn, achieving their personal goals as self-directed lifelong learners
- Be creative and innovative – Teaching could be more creative and innovative, in preparation for the 21st- century global knowledge society
- Offer flexibility – A more responsive education system would adapt to the needs of all learners, wherever and however they need to learn
- Achieve better value – Education leaders could develop innovative ways of deploying their resources, exploiting e-learning alongside other teaching methods, to improve quality and economies of scale
- Generate a professional workforce and fulfilled citizens – A community and a workforce for the knowledge society would have a high proportion of people capable of continually updating their knowledge and skills, of managing knowledge transfer, and contributing to practitioner knowledge in all its forms
- I think the development of an e-learning community in the college would endorse this vision and hence my involvement. I am commissioned to develop and implement a range of projects to introduce, test and evaluate the introduction of e-learning as a "blended" approach.

What is the strategy?

- The main points of the strategy are a set of proposals for how Faculties and some support areas can contribute to the process of change. The strategy considers:
- For **Heads of Faculty** – how they might turn a traditional educational section into one that blends the best of old and new
- For **Staff** – what it would mean for their professional role to mix e-learning with more traditional methods, enabling them to offer more active and creative ways of learning in all subjects, disciplines and skills. In support of this I have also attached as an appendix the concept of **"accelerated learning"**, a strategy I feel staff will need to grasp to take full advantage of the opportunities e-learning offers
- For **learners** – how we make sure that their personal learning needs are met, and that the way they are assessed keeps pace with these new kinds of learning

What sort of projects?

An outline proposal of suggested projects is shown below. This list is included for discussion purposes since success in developing an e-learning community requires support from staff and must approach change in an agreed way. The list also offers the opportunity to define resources and commitment required.

Suggested projects

Faculty	Division	Project title	Description
Engineering	Electrical/Science	Videocasts for demonstrations and practical	A range of video demonstrations for practical sessions in Chemistry and Biology for posting to VLE
Built Environment	Brickwork/Plumbing/Carpentry	Creation of an on-line video/picture library. Creation of on-line quizzes	Creation of a skill based video library and digital pictures. Quizzes to cover elements like Health and safety etc.
BI&T	Business, Management and Admin Computing?IT	Case Study material Screen capture demonstrations	Creation of on-line case studies with text, graphics and video. Creation of on-line demonstrations using screen capture/audio
Health care and Education	Early Years	Collaborative working	Development of a student e-community within Fd Early years to support learners
Art, Leisure Public S&S	HHair & Beauty/Sport	Videocasts for demos	Creation of skill based video sessions

	Visual Arts, Public Services	Internet Communities Case Study Library	Creation of on-line communities with other colleges, countries etc Creation of digital libraries of Art Movements, Travel & Tourism data etc
Learning Support	Key Skills	On-line Quizzes, tests etc	Creation of on-line material to support learning and assessment
Careers	Students	On-line student community	Development of blogs, wikis and other community tools for students.

Appendix: Accelerated Learning

Accelerated Learning is an umbrella term for a series of practical approaches to learning. These theories draw from a range of disciplines including: the study of aspects of brain function, theories of human attention and motivation, the psychology of optimal performance and intelligence theory.

Accelerated Learning carries with it the expectation that, when properly motivated and appropriately taught, all learners can reach a level of achievement which may currently appear beyond them. It provides a breadth of proven life-long learning skills based on an understanding of how we learn rather than what we ought to be learning.

The shortened version of the Accelerated Learning Cycle goes like this…

- Be relentlessly positive and scaffold all learning challenges
- Give an overview of what's to be done first
- Connect to previous learning and current understanding
- Embed questions and essential vocabulary early
- Provide variety in input via VAK
- Structure lots of learner questions and language exchange
- Review throughout individually and collectively
- Preview what's next as you end

The longer version of the Accelerated Learning Cycle goes like this…

It has seven stages. Each stage and its place in the cycle is of equal importance. All meaningful learning involves a degree of risk. A pre-condition of the seven stage cycle is that we create and sustain a positive and supportive learning environment where the individual learner feels safe to engage with those risks.

Some of the interventions one might expect to see at each stage of the cycle are outlined below. The cycle is not meant to be mechanistic nor dutifully followed. It does, however, offer a consideration of the importance of process in learning. Through attention to process we shift thinking away from preoccupations of content and 'coverage'.

PRE-STAGE: Create the supportive learning environment

A positive and supportive learning environment characterised by high teacher and learner expectation is a necessary constant for any learning to take place. This stage

- helps learners feel free from high levels of anxiety and be challenged
- means challenge is structured so that perceived threat never overwhelms
- keeps learners in a 'resourceful' physical state
- ensures the elements of the BASICS* model of building and maintaining positive self-esteem are in place
- disciplines the teacher to communicate high expectations and provide 'educative' feedback

STAGE ONE: Connect the learning

The lesson is connected with what has gone before and what is to come. This stage

- helps learners explore connections with previous work
- makes new information more easy to assimilate
- provides the learners with the learning outcomes, the essential vocabulary and the questions they will be able to answer by the completion of the experience

STAGE TWO: Big Picture

An overview of the content and processes of the lesson is given. This stage

- provides a set of landmarks for the learning experience
- gives access to the right hemisphere or 'interpreter' brain first
- continues to engage with the questions embedded earlier
- makes links with content and process explicit
- continues to alleviate anxieties over the accessibility and relevance of the material

STAGE THREE: Describe the outcomes

The learners are told what they will have achieved by the end of the lesson and given an opportunity to set personal performance outcomes. This stage

- declares the outcomes
- begins to chunk down the content into 'bite-size' pieces
- has the learners affirm for themselves personal performance targets
- encourages learners to make choices and measure their own progress against success criteria

STAGE FOUR: Input

The content of the lesson is given utilising VAK. This stage

- inputs new information in Visual, Auditory and Kinesthetic modes
- is distinctive and promotes active engagement
- requires lots of opportunities for structured language exchange
- is limited in duration to allow space for added reflection, assimilation and review

STAGE FIVE: Activity

A balance of different activations are used to allow learners to

explore the content in a variety of ways. This stage

- accesses a range of intelligences over time
- provides a 'balanced diet' of activities (over time)
- encourages learners to know and use the learning cycle and reflect on their own learning preferences
- immerses language in the learning activity itself

STAGE SIX: Demonstrate

The learners demonstrate their understanding of the new knowledge.

This stage

- further optimises purposeful language exchange
- requires learners to demonstrate and share understanding through a variety of outcomes
- encourages further reflection on processes used
- creates opportunities to 'model' success and leads to the final stage, which is

STAGE SEVEN: Review for recall and retention

The learners review individually and in structured groups. Distributed rehearsal is vital to long-term learning and recall. This stage

- consolidates via individual, pair and shared review
- teaches different memory and recall techniques
- provides educative feedback for performance improvement
- previews what is to come

based on information found on
http://www.alite.co.uk

8 The development of an E-Library and Collaborative infrastructure (Foundation Degrees)

Overview

This project is a college wide enterprise to develop and implement a range of technologies to create a student based environment to support teaching and learning and enhance students' learning experience.

The college has currently 3 Foundation degrees and PGCE students franchised through Teesside and Huddersfield University. These students attend part time and follow a course of study relating to a variety of disciplines such as Early Years, Engineering, Hair & Beauty. The development of on-line resources and the need for employer engagement offers an opportunity to enhance the learning experience by creating a student community which is able to communicate and interact with each other, material and tutors, within college and at a distance. The feeling of isolation and the difficulties supporting such a cohort will be addressed in order to ensure that the programme of study is not only informative but a positive learning experience that enhances achievement and retention.

As a consequence, it is proposed to explore the possibility of creating a range of resources to allow students to collaborate with each other and have access to media rich material relating to their studies.

The college has invested in a Virtual Learning Environment (VLE) and this is seen as an ideal platform for developing elearning facilities within this area of study. However there are some resource and technical issues which hopefully can be addressed through this project. In addition the college will move to a new building in the summer 2008 and this project forms an important part in determining the ICT strategy for the new building.

Project Outline

The project has three aspects:

- Development of an E-Library of media rich content available for student viewing or downloading
- Creation of a social network using collaborative software such as wikis and blogs.
- The integration of suitable mobile technology for student/staff use to allow downloading of material for viewing at a distance outside class contact periods.

Development of an E-Library

The current use of VLE resources tends to be predominantly text base with some specialist areas using media rich content. This project is designed to pilot the increased use of video and audio content through Blackboard. Content will involve:

- Video recordings of class sessions and tutorials.
- Customised video content relating to specialist skills or demonstrations and practical sessions.
- Third party videos as case studies and other support material
- Audio content relating to class sessions (podcasts)
- Audio books and other library resources.

In order to ensure quality of provision, it is important that such facilities are managed and delivered to a high standard. This will require some technical resources to allow “media streaming” of content and a library indexing system to ensure that the management of resources is maintained. A separate media streaming server linked to Blackboard facilities is a vital element of the project.

Social Networking

The increasing development of the Web 2.0 philosophy and hence the interaction implied, means that the college needs to consider how it can provide collaborative facilities to students. Interest in social software such as wikis and blogs is fast becoming a basic standard for internet users. The second part of this project is therefore centred on this aspect and the creation of a social network that will allow students to take advantage of engaging with others in a variety of ways.
The project will make use of some specialist building blocks to allow the creation of web space for students and hence the development of collaborative tools such as wikis and blogs. This facility will ultimately enhance the students involvement in the course and develop collaborative skills and interaction with peer groups as well as teaching staff.

Mobile Technology

As part of the collaborative and E-Library activities, it is hoped to pilot the use of suitable mobile devices that will allow students to download videos, audios and other material for use at a distance. Class sessions, specialist videos would be stored and accessed for both revision and research purposes.

In addition, the mobile devices would be pre-loaded with relevant material for college and university (forms, career info, library data etc).This element of the project is intended to explore how mobile technology can support the learning experience and create a greater sense of belonging to a programme of study.

Ideally the sort of device used should have computing facilities, but because of cost factors it would probably be wiser to restrict these to video iPods.

Smartphones are another possible mobile device with the added advantage of built in ICT capabilities as well as messaging, e-mail and other collaborative means.

Timetable of Events

The project is intended to run for approximately 18 months starting in January 2007 and completing in the summer 2008. The suggested timescale is as follows:

Date	Activity
November 2006 – December 2006	• Create strategy for implementing project and acquire resources. • Test and develop initial resources for the courses
January 2007	• Staff development regarding Blackboard use, media creation etc. • Introduce students to Blackboard and mobile devices.
February 2007 – April 2008	Run pilot schemes relating to • E-Library use • Recording of material and access. • Social software • Mobile devices
May 2008	Collation and analysis of results. Development of recommendations for future programmes.

Funding Requirements

Project Element	Resource	Cost	Comments
Development of an E-Library	Media Streaming technology	£15,000	Requires specialist server and software.
	Library management system?	£5,000	Possible requirement to allow LRC staff to manage the facility
Video and multimedia resources	Video camera, sound recording and editing software	Camera (£600) Sound suite (£500) Software (£200)	Although college has such equipment we may need to purchase addional resources to ensure media material can be developed as and when required.
Social networking	Implementation of Blackboard building blocks and other software	Wikis, blogs and journals (£3000) Screen capture and editing software (£1000)	Specialist software will be needed to set up a social networking environment.
Mobile devices	There are a number of options: • iPods • PDAs • Smartphones	These would be as follows: • 50 X£160 • 50 X £250 • 50 X £400 pa + call charges	The minimum requirement would be for iPods which gives basic downloading, viewing and recording facilities. The PDAs and smartphones expands our options by allowing interactivity and ICT capabilities.

In addition to the above capital expenditure, there will be consumables, administrative and support costs:

- Project Manager
- LRC Manager
- Teaching staff costs
- Technical/IT support
- Consumables (paper, disks, video cards etc)

Conclusion

This project is an important milestone in college development. Within the next two years, technology will have moved rapidly forward and the vision of just-in-time learning and collaborative activities will form a major part of most students' lives. We need to test the use of this technology and be in a position to integrate the technology into a new building that will create a college environment that students can relate to as well as a learning environment. Most students will have smart or intelligent mobile devices and this is an opportunity to be ready for this change.

George Corfield

October 2006

9 E-Learning Development Projects

The following list is a summary of the range of projects planned for 2006/07

Project title	Description	Faculty	Division
Videocasts for demonstrations a More detail	A range of video demonstrations for practical sessions in Science, Construction trades, Hair Beauty and Sport for posting to VLE	Engineering Built Environment Art, Leisure Public S&S	Science Brickwork/Plumbing/Carpentry Hair & Beauty/Sport
Case Study Libraries More detail	Creation of on-line case study library with text, graphics, video and external links.. Creation of digital libraries of Art Movements, Travel & Tourism data etc	BI&T Art, Leisure Public S&S	Business, Management and Admin Visual Arts, Public Services
Collaborative working. More detail	Development of a student e-community using "social software" and iPods within Fd Early years to support learners	Health care and Education	Early Years
Internet Communities. More detail	Creation of on-line communities with other colleges, countries etc.	Art, Leisure Public S&S	Public Services, Travel & Tourism
On-line Quizzes, tests etc. More detail	Creation of on-line material to support learning and assessment	Learning Support	Key Skills
On-line student community. More detail	Development of blogs, wikis and other community tools for students.	Careers	Students

Videocasts for demonstrations and practicals

Overview

A project to develop a range of video demonstrations for practical sessions in Science, Construction trades, Hair, Beauty and Sporty for posting to the college VLE as a student/staff resource.

Project Outline

The Biology and Chemistry labs have equipment that allows the recording of short demonstrations. This device is an overhead camera linked to a laptop computer. In addition this device can project similar recordings onto a screen via the ceiling mounted projector in each lab. Practical demonstrations can also be videoed during teaching sessions.

This project will explore the feasibility of collating a range of activities created by the teacher as demonstrations. The use of the overhead camera and a portable video camera will capture activities that are felt to be suitable for inclusion in a digital library of practical demonstrations.

Once collated and edited, these video files will be posted to an appropriate area of the VLE for student revision purposes and staff use in future teaching session. Appropriate audio commentary can be added at a later date or during the recording sessions as required. Additional activities can then be developed around these recordings if required (quizzes, activity sheets etc).

Timescale for project

It is anticipated to capture sessions throughout the year as teaching staff plan their practical sessions. This will reduce the need for staging sessions and creating additional recording times. Editing, uploading will be completed at each stage of the process with a view of creating a suitable video library by May 2007.

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Case Study Libraries

Overview

Most BTEC (and A level) programmes) use a range of case studies to enhance learning, but also they are used to create a more realistic assessment model. This project is intended to explore the use of case studies and create an electronic library with hyperlinks to case study exercises/activities as appropriate. Students will access material via the VLE and carry out appropriate activities using this material.

Project Detail

Staff in the Business and Business Admin, sections will develop or purchase appropriate case study material. This material will then be uploaded to the VLE with suitable activities and hyperlinks for students. Art, Public Services and Travel and Tourism can similarly create a library of suitable digital material for student work. Some examples of this might be a collection of Art Movements (Surrealism, Art nouveau etc) or maybe travel portfolios of countries and cultures. This material can be incorporated in lesson plans or used as research material for student activities.

Project Timescale.

This project can start and end very quickly. It is anticipated to run this during the first term. Evaluation of its use will determine the need for enhancement and refinement of materials.

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Collaborative working

Overview

This project will be aimed at Foundation Degree students studying an early Years qualification linked to the University of Teesside. The aim is to create an E-Community and hence develop the IT skills of students through the media of the Internet. Collaboration will take the form of discussion forums, wikis and blogs over an electronic communication media. The use of iPods for data (podcasts, video etc) will also be trialled.

Project Detail.

Fd students usually attend part-time and apart from face-to-face sessions have little contact with other students. This project will explore the use of social software to enhance the learning experience and develop IT skills amongst participants. Students will communicate primarily through the college VLE (Blackboard) but also participate in collaborative activities using electronic communication devices (blogs, wikis). In addition students will be given an iPod pre-loaded with college and course information with a view to using the equipment to download podcasts and videos relating to course content from the college VLE.
The project does not involve the need for staff to develop specialist material although it is hoped that as time passes the group will embrace the VLE concept and become engaged with this form of communication.

Project Timescale

It is anticipated to commence development in October and create a range of activities that will engage students in the art of electronic collaboration. The project will run throughout the academic year and be evaluated at the end of the Spring term.

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Internet Communities

Overview

Students in such areas as Public Services, Travel and Tourism are by nature of their studies involved in diverse populations both nationally and internationally. This project is designed to explore the possibility of setting up appropriate internet communities that will share experiences, culture and general information.

Project Detail

Groups within the Public services and Travel and Tourism will be encouraged to link with other establishments both nationally and internationally to create links over the internet. Although the college VLE will be a source of most material, it is envisaged that it may be necessary to create an appropriate web presence to enhance communication over the internet. A variety of means can be adopted to do this and the decision to choose a particular media could be discussed with students.

Blogs, wikis, chat rooms and digital libraries can all form part of the cross-internet community and the success will be evaluated against the enthusiasm of those involved. One aspect of the project evaluation is to determine the most popular way students like to communicate, rather than impose a specific technology on them.

Project Timescale

This project will run throughout the academic year. Initial setting up will be completed by the end of the first term and activities monitored and evaluated by May 2007.

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On-line Quizzes, tests etc.

Overview

This project runs across several others and forms an integral part of some of those described above. It is intended to encourage staff to develop a range of activities, quizzes, web searches based around the material other projects have created on the college VLE. For example the inclusion of video footage can spark a number of activities linked to the demonstrations and hence incorporated into traditional teaching strategies.

Project Detail

The development of assessment material or activity sheets will depend on the enthusiasm of the staff involved. These activities can form part of a traditional classroom activity or incorporated into the VLE as an on-line activity. The number and variety are unlimited and will depend on staff involvement in this area.

Project Timescale

It is anticipated to run the project throughout the academic year as appropriate material is developed and uploaded to the VLE. Activities will be created to be incorporated into classroom sessions as necessary.

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On-line student community

Overview

This project is a cross-college exercise in exploring the use of internet facilities to enhance the student experience. A range of social software tools will be used to create a community of students for communication, feedback and brainstorming. Initially it will probably take the form of blogging and wikis but can be enhance to more sophisticated media such as podcasts and Videocasts as students gain experience and develop the community.

Project Detail

The project will create a range of discussion forums based around student life in the college. The VLE will be used as an advertising and marketing tool with this community but can also be used for cascading material to students as appropriate. This will be a project within the student services section and run mostly by students themselves. It is anticipated that the first part of the project will be to create appropriate discussion forums and information sources.

Project Timescale

This project will start during the autumn term as members of the student union become available. Creation of web based discussion forums will be the first phase and dissemination of information the second. This means of communication will hopefully grow throughout the year and provide an insight into how students communicate in this changing culture of digital natives.

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On-line Student Community

Overview

This project is a pilot study to create an on-line community for students. Communication and social software will be incorporated into Blackboard to create a virtual world for students to have a voice in the college. The project is exploratory to determine student needs and interests in this area. The development of cyberspace facilities will probably grow as students interact with each other.

Project Details.

All students have a Blackboard account and this can be extended to create a student “course” for electronic interaction. The use of discussion boards, chat, digital drop boxes will form the basis of the community. The project will explore how students want to communicate whether by Blackboard or whether they prefer their own personal devices like mobile phones and MSN messenger. The evaluation of this facility will form the basis for future communication systems at student level. It is anticipated that the college may need to provide a student “internet café” for this purpose.

Project Timescale

The project will start in the autumn term and be reviewed termly with a final report in the summer term.

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10 E-Learning – A Review of Emerging Technologies

G.T. Corfield *Redcar & Cleveland College*

November 2006

Abstract

In light of future developments within Redcar & Cleveland College and the creation of a new College site in September 2008, this paper explores the current and future trends in educational learning platforms and a growing move towards integration of management systems. In addition the paper looks at the move towards a pervasive campus (ubiquitous computing) and discusses how teaching environments are developing for both the learner and staff.

The review explores the following:

- E-Learning 2.0 and the future
- Open Source, Blackboard and others
- The future design of colleges (ubiquitous computing and the pervasive campus)

In terms of E-Learning 2.0, the paper explores the rapid trend towards an interactive world and the increasing use of social software that is changing the way students seek to learn. Articles by Stephen Downes are used to illustrate this evolution and the observation that teaching strategies will be required to change in order to satisfy n evolving culture of collaborative learning.

In the second part of the paper, research by David Wiley is used to explore the growing development of open source software and resources. Having explored this developing trend the question of where the college stands is discussed and an alternative approach using Microsoft SharePoint Server technology is considered.

Finally the report raises the question of ubiquitous computing and the issue of future college/campus design. Using the research from Jose Bravo et al, the world of RFID and the pervasive campus is considered. The trend towards teaching using this technology is described and considered with a proposal that Redcar & Cleveland College have an opportunity to create a new and exciting learning environment for the future.

Introduction

In light of future developments within Redcar & Cleveland College and the creation of a new College site in September 2008, this paper explores the current and future trends in educational learning platforms and a growing move towards integration of management systems. In addition the paper looks at the move towards a pervasive campus (ubiquitous computing) and discusses how teaching environments are developing for both the learner and staff.

A range of initiatives are currently in progress within the college in order to develop a learning community based around the Blackboard virtual learning environment (VLE) platform. These projects are designed to engage students and staff in the creation and delivery of electronic material through a philosophy of "blended learning". Although the college has implemented a virtual learning environment which is accepted in many educational institutes, (Blackboard) there are some issues concerning future growth and emerging technologies that need addressing.

The following review explores:

- E-Learning 2.0 and the future
- Open Source, Blackboard and others
- The future design of colleges (ubiquitous computing and the pervasive campus)

11 E-Learning 2.0 and future trends in learning

E-Learning as we know it has been around for ten years or so. During that time, it has emerged from being a radical idea to something that is widely regarded as mainstream. It's the core to numerous business plans and a service offered by most colleges and universities.

And now, E-Learning is evolving with the World Wide Web as a whole and it's changing to a degree significant enough to warrant a new name: E-Learning 2.0.

Stephen Downes, (2005; National Research Council of Canada), submitted an article on the concept of E-Learning 2.0.
He made a number of observations and it is worth including his work below in order to understand the development process that has gone on within E-Learning.

Where We Are Now?

Originating in the world of computer-based delivery (CBT) systems, learning objects were depicted as being like little bits of content that could be put together or organized. Standards bodies have refined the concept of learning objects and have provided specifications on how to sequence and organise these bits of content into courses and package them for delivery as though they were books or training manuals.

Today, E-Learning mainly takes the form of online courses. The offerings found in colleges and universities everywhere, make the course the basic unit of organisation. As a consequence, the dominant learning technology employed today is a type of system that organises and delivers online resources—the virtual learning environment (VLE). This piece of software has become almost ubiquitous in the learning environment; companies such as Blackboard have installed products at thousands of universities and colleges and are used by tens of thousands of instructors and students. The learning environment takes learning content and organises it in a standard way, as a course divided into modules and lessons, supported with quizzes, tests and discussions, and in many systems today, integrated into the college or university's student information system.

In general, where we are now in the online world is where we were before the beginning of E-Learning [Brenda Mergel; 1998]. Traditional theories of distance learning, of (for example) transactional distance learning, as described by Michael G. Moore, have been adapted for the online world.

Content is organised according to this traditional model and delivered either completely online or in conjunction with more traditional methods, to cohorts of students, led by an instructor, following a specified curriculum to be completed at a predetermined pace.

What is changing?

The nature of the Internet, and just as importantly, the people using the Internet, has begun to change. These changes are sweeping across entire industries as a whole and are not unique to education; indeed, in many ways education has lagged behind some of these trends and is just beginning to feel their wake.

One trend that has captured the attention of numerous pundits is the changing nature of Internet users themselves. Sometimes called "digital natives" and sometimes called "n-gen," these new users approach work, learning and play in new ways (The rise of the Net generation). They absorb information quickly, in images and video as well as text, from multiple sources simultaneously. They operate at high speed, expecting instant responses and feedback. They prefer random "on-demand" access to media, expect to be in constant communication with their friends (who may be next door or around the world), and they are as likely to create their own media (or download someone else's) as to purchase a book or a CD.

The manner in which this new generation of users is changing markets is captured evocatively in a document called *The Cluetrain Manifesto*. First posted online in April 1999, the document begins with the declaration that "markets are conversations" and continues with a redefinition of the relation between producer and consumer. "Markets are getting smarter, more informed, more organized… People in networked markets have figured out that they get far better information and support from one another than from vendors."

In learning, these trends are manifest in what is sometimes called "learner-centred" or "student-centred" design. This is more than just adapting for different learning styles or allowing the user to change the font size and background colour; it is the placing of the control of learning itself into the hands of the learner (Robert J Marzano).

Learning is characterised not only by greater autonomy for the learner, but also a greater emphasis on active learning, with creation, communication and participation playing key roles, and on changing roles for the teacher, indeed, even a collapse of the distinction between teacher and student altogether (S Downes; 2005).

Taking this approach even further is George Siemens's *Connectivism*. "We derive our competence," writes Siemens, "from forming connections... Chaos is a new reality for knowledge workers... Unlike constructivism, which states that learners attempt to foster understanding by meaning-making tasks, chaos states that the meaning exists— the learner's challenge is to recognize the patterns which appear to be hidden. Meaning-making and forming connections between specialized communities are important activities." The breaking down of barriers has led to many of the movements and issues we see on today's Internet. File-sharing, for example, evolves not of a sudden criminality among today's youth but rather in their pervasive belief that information is something meant to be shared. This belief is manifest in such things as free and open-source software, Creative Commons licenses for content, and open access to scholarly and other works.

Sharing content is not considered unethical; indeed, the hoarding of content is viewed as antisocial (S Downes; 2003) And open content is viewed not merely as nice to have but essential for the creation of the sort of learning network described by Siemens.

The Web 2.0

The first sign that something was changing on the Web was the underground popularity of a site called *LiveJournal* and the very visible surge of interest in a site called *Friendster*. These sites, which came to be called "social networking sites", were rapidly emulated by such services as Tribe, LinkedIn, Google's Orkut, Flickr, and Yahoo 360. Writers conversant with the works of social network analysts, people like Duncan J. Watts and Mark Buchanan, for example, noticed that similar patterns existed in these online networks. What was happening was that major parts of the World Wide Web were acquiring the properties of communications networks, the sorts of networks found to exist (albeit on a much smaller scale) in the physical world. And that the Web itself was being transformed from what was called "the Read Web" to the "Read-Write Web," in accordance with Tim Berners-Lee's original vision. Proponents of this new, evolving Web began calling it Web 2.0 and the trend became a movement.

"Enter Web 2.0, a vision of the Web in which information is broken up into "microcontent" units that can be distributed over dozens of domains. The Web of documents has morphed into a Web of data. We are no longer just looking to the same old sources for information. Now we're looking to a new set of tools to aggregate and remix microcontent in new and useful ways" (Richard MacManus & Joshua Porter). In a nutshell, what was happening was that the Web was shifting from being a medium, in which information was transmitted and consumed, into being a platform, in which content was created, shared, remixed, repurposed, and passed along. And what people were doing with the Web was not merely reading books, listening to the radio or watching TV, but having a conversation, with a vocabulary consisting not just of words but of images, video, multimedia and whatever they could get their hands on. And this became, and looked like, and behaved like, a network.

Nowhere is this clearer than in the world of blogging. In a few short years the blog went from a few idiosyncratic Web sites to something used by millions of people empowered by content creation tools such as Blogger and Wordpress.

Even more importantly, these blogs were *connected* to each other through the mechanism of RSS, a simple XML format that allows bloggers to send their content to a network of readers (called 'subscribers').

But it wasn't just blogging. Moreover, using a collaborative writing tool called the wiki Jimmy Wales and a few thousand of his friends created a site called Wikipedia, rendering Encyclopaedia Britannica obsolete in the process. Others, using the free audio-recording tool Audacity, began recording their own talk and music; this, when combined with RSS, became podcasting, a rapidly rising phenomena that is transforming what we think about radio. For all this technology, what is important to recognize is that the emergence of the Web 2.0 is not a **technological revolution, it is a social revolution.** It's about enabling and encouraging participation through open applications and services.

E-Learning 2.0

In the world of E-Learning, the closest thing to a social network is a community of practice, articulated and promoted by people such as Etienne Wenger in the 1990s. According to Wenger, a community of practice is characterized by "a shared domain of interest" where "members interact and learn together" and "develop a shared repertoire of resources".

For the most part, though, what constituted "community" in online learning were artificial and often contrived "discussions" supported by learning management systems [Fay Sudweeks]. These communities were typically limited to a given group of learners, such as a university class, had a fixed start and end-point, and while substantially better than nothing, rarely approached Wenger's theory.

That's not to say no communities of practice were forming. There were some attempts to foster them, as for example MuniMall, directed toward the municipal governance sector, and PEGGasus, directed toward engineers and geophysicists. Moreover, as commentator Erin Brewer has noted, places on the Internet like Yahoo! Groups have become a locus for community learning activities.

But in general, the uptake has been slow, and the support from traditional institutions almost non-existent.

Educators began to notice something different happening when they began to use tools like wikis and blogs in the classroom a couple of years ago. All of a sudden, instead of discussing pre-assigned topics with their classmates, students found themselves discussing a wide range of topics with peers worldwide. Imagine the astonishment, for example, when, after writing a review of a circus she had viewed, a Grade 5 student received a response from one of the performers [Educational Blogging]. In a very short time, blogs were used for a wide variety of purposes in education; an educational bloggers' network formed and by this year thousands of teachers were encouraging their students to blog.

Blogging is very different from traditionally assigned learning content. It is much less formal. It is written from a personal point of view, in a personal voice. Students' blog posts are often about something from their own range of interests, rather than on a course topic or assigned project. More importantly, what happens when students blog, and read reach others' blogs, is that a network of interactions forms-much like a social network, and much like Wenger's community of practice.

It's not just blogging. Educators have also taken an interest in podcasting. Some have started broadcasting, such as at McMaster, where engineering professors now host an online show [**McMaster Students Get Into PodCasting**].

> "We're talking to the download generation," said Peter Smith, associate dean, Faculty of Engineering. "Why not have the option to download information about education and careers the same way you can download music?
>
> It untethers content from the Web and lets students access us at their convenience."

Moreover, using an online service such as Odeo, Blogomatrix Sparks, or even simply off-the-shelf software, students can create their own podcasts. What happens when online learning ceases to be like a medium, and becomes more like a platform?

What happens when online learning software ceases to be a type of content-consumption tool, where learning is "delivered," and becomes more like a content-authoring tool, where learning is created? The model of E-Learning as being a type of content, produced by publishers, organized and structured into courses, and consumed by students, is turned on its head. Insofar as there is content, it is used rather than read— and is, in any case, more likely to be produced by students than courseware authors. And insofar as there is structure, it is more likely to resemble a language or a conversation rather than a book or a manual.

The E-Learning application, therefore, begins to look very much like a blogging tool. It represents one node in a web of content, connected to other nodes and content creation services used by other students. It becomes, not an institutional or corporate application, but a personal learning centre, where content is reused and remixed according to the student's own needs and interests. It becomes, indeed, not a single application, but a collection of interoperating applications—an environment rather than a system.

It also begins to look like a personal portfolio tool [Chandler Gilbert Community College]. The idea here is that students will have their own personal place to create and showcase their own work. Some e-portfolio applications, such as ELGG, have already been created. IMS Global as put together an e-portfolio specification [IMS ePortfolio Specification]. "The portfolio can provide an opportunity to demonstrate one's ability to collect, organize, interpret and reflect on documents and sources of information. It is also a tool for continuing professional development, encouraging individuals to take responsibility for and demonstrate the results of their own learning" [eifel-l].

This approach to learning means that learning content is created and distributed in a very different manner. Rather than being composed, organized and packaged, E-Learning content is syndicated, much like a blog post or podcast. It is aggregated by students, using their own personal RSS reader or some similar application. From there, it is remixed and repurposed with the student's own individual application in mind, the finished product being fed forward to become fodder for some other student's reading and use.

More formally, instead of using enterprise learning-management systems, educational institutions expect to use an interlocking set of **open-source applications**. Work on such a set of applications has begun in a number of quarters, with the E-Learning Framework defining a set of common applications and the newly formed e-Framework for Education and Research drawing on an international collaboration. While there is still an element of content delivery in these systems, there is also an increasing recognition that learning is becoming a creative activity and that the appropriate venue is a platform rather than an application.

In the future it will be more widely recognized that the learning comes not from the design of learning content but in how it is used. Most E-Learning theorists are already there, and are exploring how learning content-whether professionally authored or created by students— can be used as the basis for learning activities rather than the conduit for learning content. A great deal of work is being done, for example, in educational gaming and simulations.

A similar motivation underlies the rapidly rising domain of mobile learning —for after all, were the context in which learning occurs not important, it would not be useful or necessary to make learning mobile. Mobile learning offers not only new opportunities to create but also to connect. As Ellen Wagner and Bryan Alexander note, mobile learning "define(s) new relationships and behaviours among learners, information, personal computing devices, and the world at large" [enabling mobile learning].
As this trend progresses, we find ourselves in a world characterized by the phrase "ubiquitous computing." "Where virtual reality puts people inside a computer-generated world, ubiquitous computing forces the computer to live out here in the world with people" [ubiquitous computing paper].

The "Father of ubiquitous computing," Mark Weiser, compares computing of the future to writing. "Today this technology is ubiquitous in industrialized countries. Not only do books, magazines and newspapers convey written information, but so do street signs, billboards, shop signs and even graffiti" [The computer for the 21st century].

In the world of learning, what this means is having learning available no matter what you are doing. Jay Cross captures this idea in the concept of "workflow learning".

Sam Adkins writes, workflow learning is "a deep integration with enterprise applications assembled from Web Services into composite applications" with "task and work support fused into the aggregated business processes that make up the real-time workflow" and supported by "contextual collaboration with people and systems" and "design and modification achieved by modelling and simulation" [workflow learning].

Of course, there is no reason to expect that this form of learning would be restricted to the workplace. Learning integrates into every aspect of our lives, from daily household chores to arts and culture. Learning and living, it could be said, will eventually merge. The challenge will not be in how to learn, but in how to use learning to create something more, to communicate.

12 Open Source, Blackboard and others

What is Open Source? A Recent history.

(Extracted from: Wiley, D. 2006. Open source, openness, and higher education. *Innovate* 3 (1). http://www.innovateonline.info/index.php?view=article&id=354 (accessed November 13, 2006).

There once was a time when open source software was the sole province of the geek and existed behind barricades impassable by ordinary computer users. The first major barrier was inscrutable jargon; users who did not understand the meaning of commands such as "./configure; make; sudo make install" were often simply left out. A second obstacle was that most open source programs, such as Web servers and mail servers, were limited primarily to applications and utilities that were useful to servers and network administrators; such resources went beyond the needs of the average desktop computer user. Even those applications that might have broader appeal, such as text editors, were often so complex that running them seemed to require a specialized degree. A further limitation was that most open source software was written exclusively for free, Unix-like operating systems. Finally, these tendencies, in turn, contributed to another major barrier—namely, the common perception among average computer users that free applications must surely lack the intuitive features and accompanying technical support of commercial applications. In short, the world of open source was closed off to normal people.

Recent developments, however, are bringing open source into the lives of average desktop computer users. In addition to their availability for open source operating systems like Linux, many open source applications are also available for proprietary operating systems like Windows and Mac OS X. Installing these applications generally works like installing commercial software—users just double-click to begin the install process. In many ways, recent trends in the open source world can be seen as a distributed effort to replace popular proprietary software with easy-to-install-and-use open source software. Options for nearly all commonly used programs abound. For example, in place of Microsoft Office, users can run Open Office, an MS Office-compatible open source replacement. One alternative to Microsoft's Internet Explorer is Firefox, an open source Web browser with all the features of its commercial counterpart. Instead of Microsoft Outlook, users can try Thunderbird, a full-featured, open source e-mail application. Jabber not only offers an open source alternative to AOL's Instant Messenger but also allows users to chat with people running software from AOL, MSN, Yahoo!, and ICQ.

Word processing, working with spreadsheets, crafting presentations, surfing the Web, managing e-mail, and chatting with co-workers and friends probably account for the vast majority of the time average desktop computer users spend at their machines. While these users and their needs for simple installs and familiar interfaces were all but ignored only a few years ago, today it is actually possible for anyone to perform the basic tasks outlined above without ever launching a proprietary application. Even more specialized needs can be satisfied with alternative sources of software for users who look for them. For example, one can visit Google, enter "open source photoshop" or "open source mathematica," and discover programs such as GIMP and Maxima, respectively, or a host of other versions of completely free and open source software.

Open source software enters mainstream use when it compares favourably to proprietary applications in terms of available features and technical support. In some cases, freely available software surpasses commercial rivals in these critical areas and thus compels the industry to improve its products. To cite just two examples, Firefox users for years have taken for granted certain features such as tabbed browsing that are only now being adopted into a beta version of Internet Explorer, and users of Apache have enjoyed excellent e-mail and chat support. In these ways the open source movement has helped raise standards within the market at large and has served as a catalyst for productive innovations that many people now regard as essential to software functionality and design.

Moving into Education

The growth of open source software in the public domain at large has begun to make itself felt in various ways within the arena of education. This influence can be seen most directly in the wide array of open source software applications now available to educational institutions and instructors. At the same time, this influence can also be seen in the further steps towards openness that have begun to take place outside the specific context of software use—in particular, the dissemination of open access course materials as well as the creation of open access research repositories and electronic publishing venues.

Software

Educational institutions have a growing array of options to consider when acquiring software. Learning and course management systems (CMS) like WebCT and Blackboard can now be replaced by attractive open source alternatives like Sakai and Moodle. In recognition of these options, Athabasca University (2006) has recently announced their adoption of Moodle as their official CMS, and other institutions such as the British Open University (2005) have taken this step as well. Meanwhile, a plethora of educational applications are available to support student learning in both higher education and K-12 contexts. Open source applications that teach and tutor on every subject are surprisingly abundant—one need only search a site such as SchoolForge to survey the range of options.

Moreover, the potential for the development of education-specific features within existing open source software promises additional opportunities. Open source applications are, by design, adaptable and can therefore be applied to a variety of uses.

For example, photo gallery software designed for sharing and rating photos could be adapted for sharing and rating essays, CAD files, or musical compositions. Software designed for creating interactive multimedia presentations could be adapted for a course module illustrating the phases of bacterial cell growth or the relationship between supply and demand in classical economic theory. If the redesign of non-educational software for educational use has always been possible in principle, the highly flexible design of open source applications provides the ideal way to put this principle into practice.

Teaching

The open source philosophy is having a much broader impact in education than just changing the way universities license software—it is also changing the way faculty disseminate research results and teaching materials. A recent report (Wiley 2006) produced for the Organisation for Economic Co-operation and Development (OECD) makes plain the extent to which educational institutions are adopting the open source mindset in their use of educational resources. Approximately 175 universities worldwide currently participate in programs through which they provide free and open access to the content of over 2,000 university courses; MIT OpenCourseWare provides the majority of these courses, but with efforts underway at universities in Australia, Brazil, Canada, Hungary, India, Iran, Ireland, the Netherlands, Portugal, Russia, South Africa, Spain, Thailand, the UK, the US, and Vietnam, that majority position is not likely to last long. The move to share the content of university courses openly is growing at an amazing rate.

Many other kinds of educational resources are widely shared, thanks to the open content philosophy. Thousands of smaller educational modules are accessible through collaborative online projects such as Connexions. The Web site Textbook Revolution indexes and provides free access to over 150 textbooks made available by their authors and copyright holders. In the spirit of reusing and adapting shared material, many of these resources are being translated into Spanish, Chinese, Portuguese, and other languages. Meanwhile, the Multimedia Educational Resource for Learning and Online Teaching (MERLOT) currently offers access to almost 15,000 educational materials.

Redcar & Cleveland College and Open Source

The concept of Open Source software and resources is extremely attractive, but comes with a range of overheads for a Further Education college. Technical support in FE establishments is limited and availability of programmers and technical specialists almost non-existent. Universities on the other hand have resources to take full advantage of the open source revolution. Many are now exploring this route and discarding proprietary software such as Blackboard and WebCT in favour of open source alternatives (viz. Sakai and Moodle). However it is apparent that some FE establishments and many schools are moving towards the Moodle platform and this may be for economical reasons.

Future developments at Redcar & Cleveland College relate to a need for the integration of management information systems as well as learning environments and without technical support readily available, the open source solution seems unacceptable.

The decision to remain with the large VLE companies might need reviewing since licence fees are still extremely high. There could be an alternative.

Microsoft developments.

Currently Microsoft are developing a range of MS Office solutions under the banner of Microsoft Office 2007. This suite of programs are extremely intuitive and the Office suite (Word, Access, Excel etc) are very much improved and designed for the future interactive world. As part of this development process, Microsoft Office SharePoint Server 2007 is being introduced and this software is an integrated suite of server applications that improves organizational effectiveness by providing comprehensive control over electronic content; accelerating shared business processes; and facilitating better-informed decisions and information-sharing across boundaries. In addition, Microsoft have announced that this suite of server applications will be enhanced in early 2007 by the introduction of their **Learning Gateway** . They claim the Learning Gateway is a solutions framework that helps improve education by integrating the tools you already use and putting them to work connecting people with the information and processes they need to teach and learn more effectively. This Learning gateway is described on their site as:

"The Microsoft Learning Gateway" is a powerful education portal that enables the people throughout higher education to share information and work together on projects from a single point of access. The Learning Gateway uses innovative collaboration and communications technologies to help you get more out of your existing applications—using familiar tools and extending the value of your investment in Microsoft technologies.

Collaborate and share

Communication and collaboration are key elements for building communities. The Learning Gateway makes it easier for students and instructors to collaborate effectively, including the ability to:

- Share resources among students, lecturers, and administrators.
- Create groups that can share content, view group calendars, and stay in touch using powerful Microsoft communications tools.
- Save time and bandwidth by using the Learning Gateway as a shared repository for content-rich articles and other learning objects, instead of sending large files through e-mail.

Build for your needs

The Learning Gateway can be configured to the exact needs of your institution—whatever its size, budget, and existing information systems. Its information-rich environment gives you:

- Role-based views of all relevant applications, documents, and learning resources.
- Access to different areas of the system without repeated logins.
- Control over what information you see and how it is organized.
- A forum for sharing and promoting best practices.

Deploy at your speed

Because it is a scalable and standards-based solution, you can deploy features of the Learning Gateway at your own speed. For example:

- **Getting started:** Use Microsoft Office SharePoint Portal Server 2003 and Microsoft Exchange Server 2003 to establish a personalized, secure, managed, and collaborative learning community across your entire organization.
- **Evolving:** Add Microsoft Office Live Communications Server 2003 to create a real-time communications environment and to introduce real-time collaboration functionality to Microsoft and partner applications.
- **Advanced use:** Integrate data from enterprise applications. Provide your people with self-service access to complete processes for admissions, recruitment, assessment, reporting, scheduling, and grading. Authorized users can also modify personal data in real time using just one Microsoft managed learning environment."

13 The future design of colleges

(Extracted from: "**From Mobile to Pervasive Learning", Djamshid Tavangarian** University of Rostock / Germany)

The field of learning through technology is a vast one with subtle distinctions among its various branches. Mobile learning, sometimes called m-learning, is learning accomplished with the use of small, portable computing devices. These computing devices may include: smart phones, personal digital assistants (PDAs) and similar handheld devices. Using m-learning the education process is gradually shifted from the **transfer to the development of expertise and professional understanding** at the point just when it is needed. The question is what comes after mobile learning?

Pervasive learning (PL) is based on pervasive computing which occurs when the entire environment becomes embedded with information accessed through devices such as desktop computers, mobile phones, handheld computers, smart cards, sensors and location based systems such as GPS or Galileo, or items in development. The communication technologies used in such devices are GSM, UMTS, WLAN, Bluetooth, etc. PL will enable people to learn, work, access and exchange information while on the move (i.e., at any time and any place, without being distracted by computers). In other words, the target is to bring together the possibilities offered by pervasive computing with the modern pedagogical strategies in order to further improve the effectiveness of tomorrow's learning, teaching, and working. People and real processes come to the fore. In this way the PL process is not isolated to a single geographic location, and virtual classrooms can exist everywhere. PL does not need to be restricted to the use of mobile or location-based technologies. The existing learning environment is completed by embedded, invisible sensors and minicomputers. This can improve learning, teaching, and working in an academic environment, thus leading to a pervasive campus.

The Ubiquitous classroom

Reproduced from: Ubiquitous Computing in the Classroom: An Approach through Identification Process (Bravo et al 2006). The following article discusses the use of RFID as a means of moving towards pervasive computing. I make no apologies for including the article since it represents the probable future trend in teaching and learning environments.

For a large number of people in multiple and diverse environments, computers are tools which are used more and more frequently. Some factors such as price and power have been decisive in their present day, massive-scale use. We are, however, still a long way from making this technology profound and indistinguishable from the setting in which it is embedded. What is really sought is for the user to concentrate on the task rather than on the tool. The Ubiquitous Computing vision [Weiser, 91] proposes the invisible computer and yet at the same time it also advocates its omnipresence, as it approaches users with more intuitive and natural interfaces [Ishii, 97][Harrison, 98]. The main goal is to distribute the computer around the workplace, creating more versatile devices for solving simple processes, using wireless communications- all this as an aide to us in our daily activities. Thus we will transfer computer capabilities to the environment.

Research in this field is looking towards user interface models with a continuous presence, showing information at different attention levels, connecting physical and virtual events and seeking the evolution of communication methods.

In this paradigm, new forms of interaction are required. In traditional explicit interaction, the user asks the system to carry out the action through sophisticated interfaces. This kind of interaction contradicts the paradigm base of invisible computing. If possible, we need to find more natural interactions without an explicit dialogue of user-computer. Albrecht Schmidt [Schmidt, 00, 05] proposes a definition of Implicit Human Interaction (iHCI):

"*iHCI is the interaction of a human with the environment and with artefacts which is aimed to accomplish (sic) a goal. Within this process, the system acquires implicit input from the user and may present implicit output to the user*".

Schmidt defines implicit input as an action recognized and interpreted by the system, but which is not primarily a user action, also affirming that Implicit Output is not directly related to an explicit input and is fully integrated into the context. Finally, Schmidt argues that the system can anticipate the user's needs and provide support.

Some efforts are contributing to this paradigm research in the context of education, especially at universities. Weiser proposes the campus as an environment where the benefits of Ubiquitous Computing can be seen most clearly, an environment that places hundreds of PCs, Handhelds and many different cards around us, working together with wireless communications and thus making work easier [Weiser, 98].

In the Classroom 2000 Project at Georgia Tech, this paradigm is included in universities in order to facilitate the students' task of listening, synthesizing and understanding what is happening in the classroom, using different devices such as Tablet-PC and boards (Xerox Liveworks LiveBoard) [Abowd, 00].

Bravo's paper aims to contribute to this new paradigm with devices situated in the classroom which identify students and teachers. This process allows users to obtain services from the environment with ease. Services such as visualization of teacher presentations or assignments proposed and solved can be obtained. In the next section he presents the process of identification by RFID technology. The section following this concentrates on "context" definition and on the fundamental aspects used to analyse our classroom model. Lastly he concludes by focusing on the search for, and adaptation of, new devices to place in the classroom.

The identification process

People identification is an excellent implicit input to the computer. The simple action of walking near the antenna allows the system to read and write information

such as Id. Number, profile and other details which can be very useful, depending upon where the users are.

Many authors have researched mechanisms for identifying and locating users in organizations. Want and Hopper provided this kind of service by means of active badges, which transmitted signals that were picked up by a net of sensors located around the building [Want, 92].

Beigl & Gellersen, in their experiment MediaCups, propose an identification and location process by embedding sensors in everyday objects [Beigl, 01]. Other works focus on certain contexts such as academic conferences. In these the context adapts the information to the user's profile [Cox, 03].

Radiofrequency Identification (RFID)

This technology allows us to identify people and objects easily without any user interaction. Three kinds of objects are clearly differentiated: the reader (reader or transceiver, with an antenna), the label (tag or transponder) and the computer. In Figure 1 we can see the structure of a label in the top left-hand corner. This small device contains a transponder circuit that, in the case of the passive tags, takes the wave energy that the reader continually emits, so as to read and write the information that these may include.

The passive tags can store over 512 bytes, including an identification number and other kinds of user information.

In this figure, on the right of the label circuit, we can see a distribution of the information, coupled with the teacher and student profiles inside the classroom context. Finally, at the bottom of the figure, the identification devices mentioned previously are shown.

RFID technology offers important advantages over traditional bar codes. Some of these advantages are that the labels do not have to be visible to be read, the reader can be located a meter away (with passive tags), they can be reused and the reading speed is over 30 labels per second. In RFID, security is guaranteed.

The information is transmitted in an encrypted form and only authorized readers can manipulate the data.

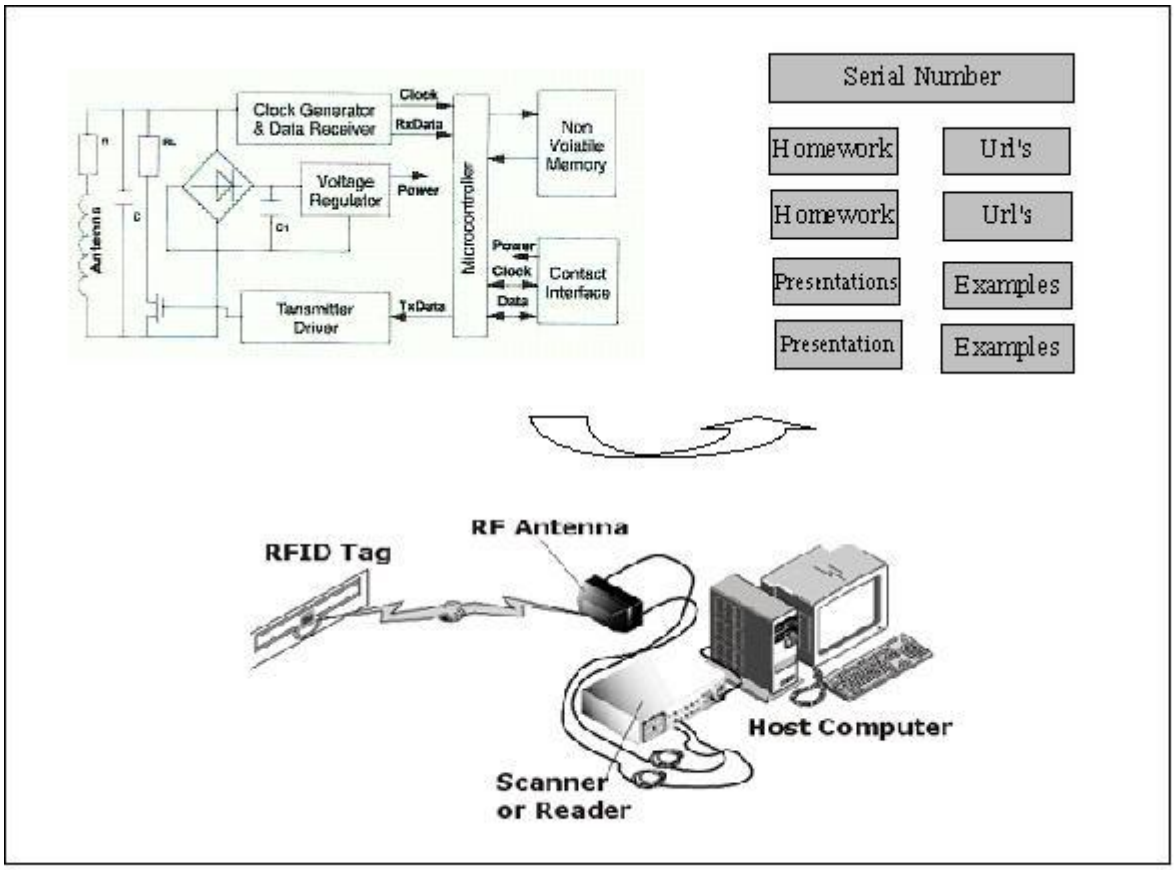

Figure 1: Passive tag, distribution of the information and read/write process.

This technology is commonly used to identify objects. We consider it an excellent idea to apply it to identifying people, with the added advantage of being able to use the small, dynamic information stored in the tags as a context interaction. Therefore, by identifying people and objects using the same components, a saving of readers and antennas is achieved. Services are thereby increased when new needs appear.

Figure 2 shows two types of devices. The one on the left presents a reader and an antenna with read-and-write capability reach of over 75 cm. This has been especially designed for its location on classroom doors or near boards. It can read several labels, simultaneously identifying people entering the classroom. It can also identify the teacher or the students approaching the board.

The one on the right is a contact reader including an antenna with a reach of only 10 cm. A model of the tag is also shown. This identification system is especially appropriate for individual use.

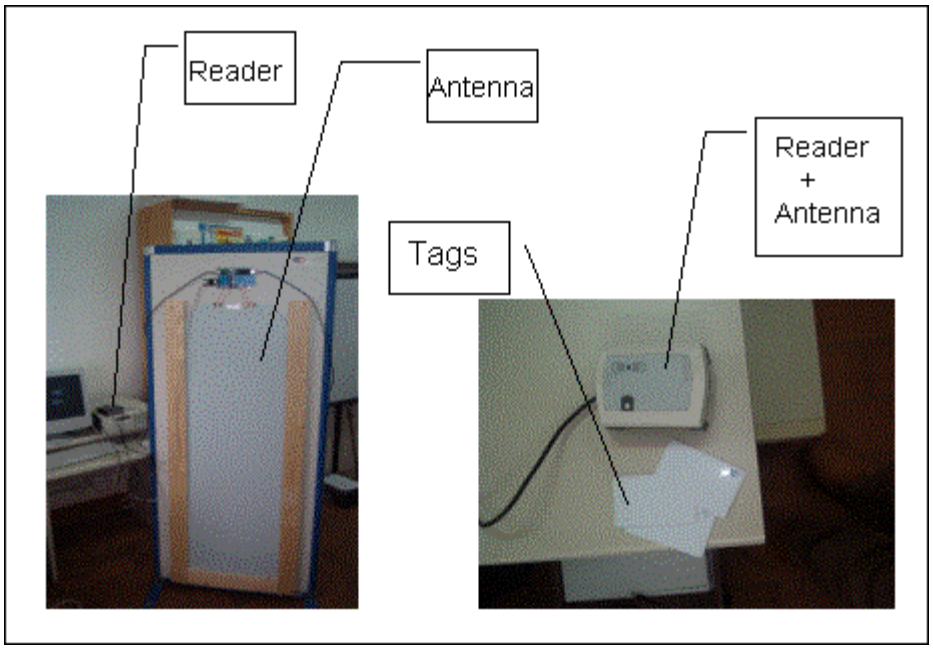

Figure 2: RFID devices

The context

This concept is an important source of information, but at the present time we have a poor understanding of the wealth that it contains. The power of language, along with the understanding of how the world works and the implicit knowledge of everyday situations, all allow humans to express their ideas well and to communicate with others in an orally-correct manner. The computer-human dialogue does not happen like this; we have more complicated mechanisms of interaction.

Many studies and definitions of the term "context" exist. Brooks considers several aspects that we shall now mention as being important: [Brooks, 03]

- **Who** (Identity Awareness) - This aspect manages user profiles and the way that context differentiates them in order to attain appropriate behaviour.
- **Where** (Location Awareness) - This is the knowledge of the location of people and the objects that will carry out the tasks.

- **When** (Time Awareness) - This aspect refers to the acquisition and maintenance of information about time and date, static schedules and the dynamism of the user's calendar.
- **What** (Task Awareness) - This is focused on what the user is doing, the task he/she is carrying out and all that he/she wants to achieve. Therefore, it creates the services that the system offers him/her.
- **Why**- To communicate easily with the computer through daily activities in the world as computer inputs.

This is an appropriate moment to recall the definition given by A. K. Dey:

> "*Context is any information that can be used to characterize the situation of an entity. An entity is a person, place, or object that is considered relevant to the interaction between a user and an application, including the user and application themselves*." [Dey, 01].

Schilit defines context-aware computing to be how "*software adapts according to the location of use, the collection of nearby people, hosts, and accessible devices, as well as to changes to such things over time*". [Schilit, 94] Dey considers that a system is context-aware if it uses context to provide relevant information and/or services to the user, where relevancy depends on the user's tasks. When thinking about the aspect of the classroom context, the profiles (students and teachers), are in "who", the schedule in "when", the classroom in "where", the tasks (visualization services and homework control) in "what" and, lastly, the natural interaction in "why".

We have focused these context aspects on identification [Bravo, 03, 04]. For this reason we are placing the concepts strategically in order to obtain user services, as Figure 3 and Table 1 show. Other services appear in this figure. These are embedded in the identification process itself and are presence, location or access controls. Thus the "what" (services) can be obtained through the following function, combining "who", "when" and "where".

ID (profile, schedule, context) -> Service

Profile	Schedule	Context	Service
Teacher	Time for class	Classroom	Presentation
Student	Time for class	Classroom	Problem solved visualization
Teacher/Student	Time for class	Classroom	Access
Student	Time for class	Classroom	Homework (written in tag)
Student	Time between class	Classroom	News and Notices

Table 1: Identification-based services

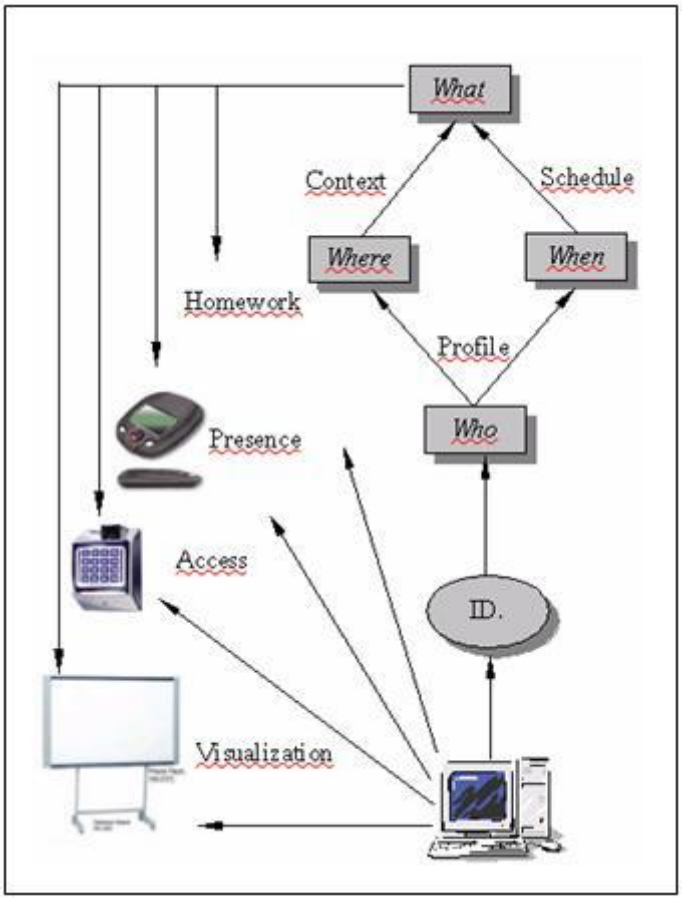

Figure 3: The context concepts in the classroom through identification.

In the following sections we detail those services that the identification process provides in our classroom context.

Identity awareness

This is the basic process that is carried out by readers placed strategically in the school centre. In our case there are readers located on every classroom door. These will capture the information necessary to know who is inside (or there may even be two readers to avoid in/out ambiguities). Through each reading, the system obtains users' data from a database, determining each profile and deciding the system's behaviour. In addition, the database contains data about teachers' and students' needs, offering adapted information.

Other services such as control of class attendance are important at secondary education level. Here, the teachers are concerned about non-attendance to school.

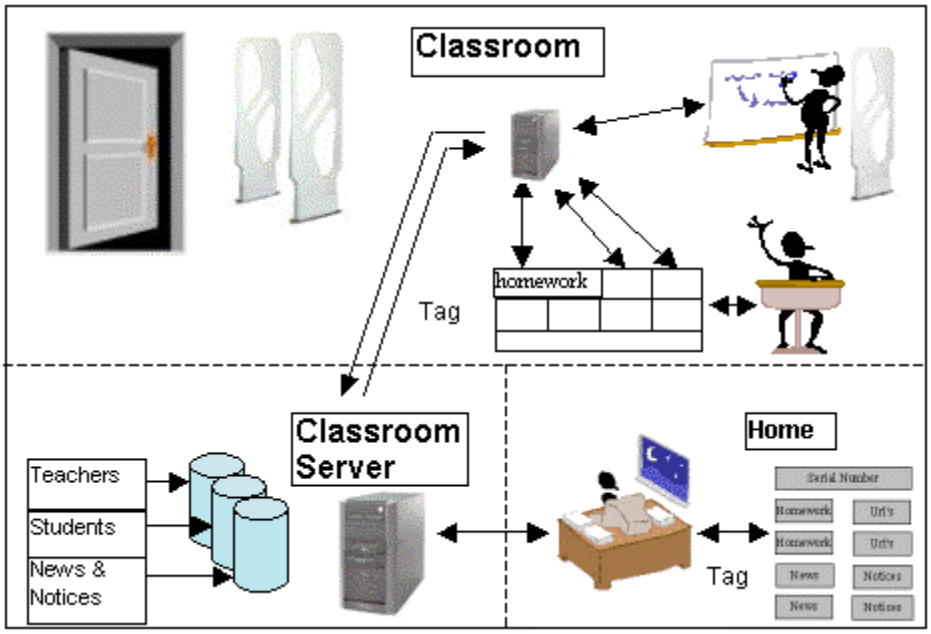

Figure 4: Identification process architecture.

Location awareness

The system knows about the people in the room and the proximity of everyone to the board (projection screen) (Fig. 4). To do this, only an additional antenna near the board is necessary. If the teacher approaches the board, the information will be shown automatically for each subject (presentations, examples, url's, etc.). If it is the student who approaches the board, the information concerning him/her will

be shown, for example the solution to their homework. In both cases the system responds without the users' explicit interaction.

Lastly, annotations and the teacher's corrections are stored in the database - they will be placed in the student's label when this individual leaves the classroom. Later, at home, the student accesses homework via a personal reader.

Time awareness

The system knows about the tasks that will be developed in the classroom at all times. It knows if it is time for class, rest or any other type of activity. In addition, it has stored the school calendar, so it is able to differentiate between the time for regular classes, examination periods or holidays. This time aspect is important, but it is also complemented with the other aspects mentioned above; profile and location. By knowing each user's timetable (class schedule, meetings, etc.) the contextual information becomes remarkably rich.

Task awareness

The task knowledge desired can be acquired through the users' explicit interaction extracted from the concepts mentioned previously (time, location and identification). We believe that identification is, in fact, the action which is the most significant in anticipating the users and in offering them all the implicitly required services.

It is obvious that one of the fundamental tasks in the classroom is the presentation of information (Visualization). In our ubiquitous classroom approach, this presentation is spontaneously shown through user identification.

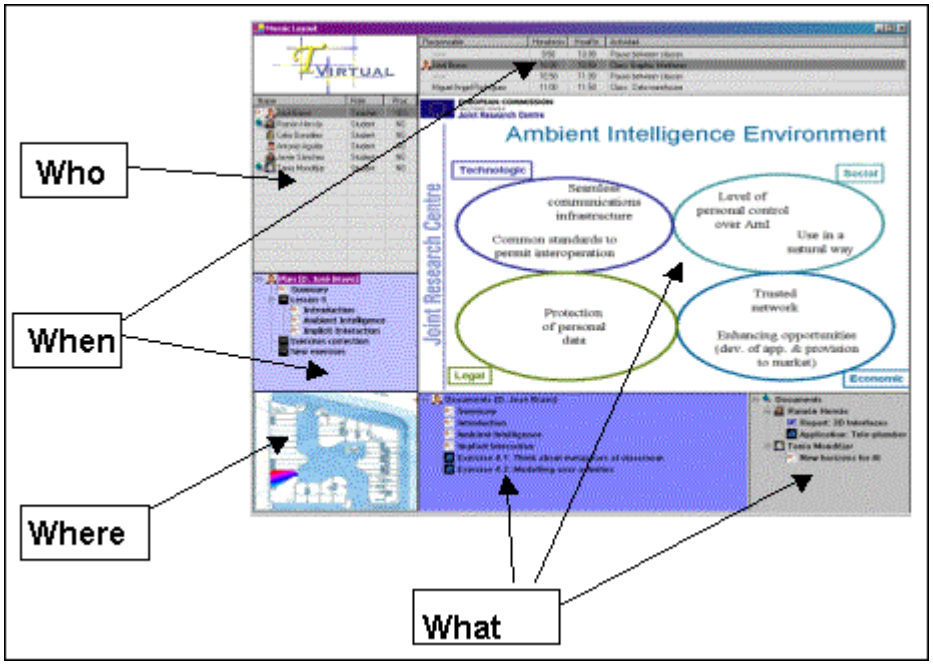

Figure 5: Teacher's Profile board.

Figure 5 shows the information and services available in a typical scenario in the classroom. It includes the teacher's profile information.

The presentation, attendance, school calendar (schedule), teacher's plan, classroom location, documentation and exercises can be observed (what, who, when & where). In the visualization service the context aspects are represented. The corresponding scenario is the following one:

When the teacher arrives at the classroom, the reader and the antenna placed near the door read his/her tag. The computer immediately changes the schedule on the top of the board, showing that the class is about to begin. In the top left-hand corner, there is also a list of the learners who are present in the classroom. Below that, the teacher's plan is activated. This plan indicates the different tasks the teacher aims to carry out in the lesson. Finally, the system shows the presentation of the unit being explained (the largest part of the board)- this is the first task of the aforementioned plan. Below that, all the information relative to this unit- url's, proposed problems, activities, etc. is shown.

In Figure 6, the student's profile is displayed in the time between classes. In this, general and individual information is presented, with news and notices adapted to everyone.

The first type depends on a general profile- for instance, students at the same level. The second deals with individual information and is shown when each student approaches the board (proximity).

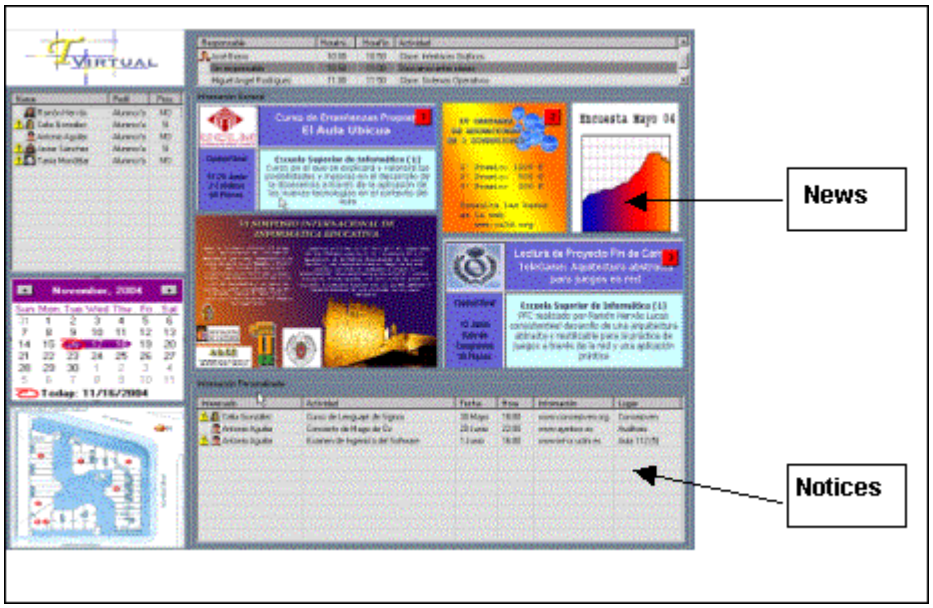

Figure 6: Student Profile board.

The "way" aspect: Implicit Interaction

This concept is perfectly justified in our identification process. Through RFID technology and situations of the type in/out of the classroom or proximity to the board we achieve the principle of iHCI. In this, the input to the computer are the daily activities in the real world.

Conclusions

This has been a first approach to the ubiquitous classroom through the identification process with RFID technology, attempting to follow the principles that the interaction paradigm proposes. Bravo considered it important to establish mechanisms to facilitate services to the user in a natural way. In this sense, the labels fulfil this objective perfectly, since the only necessary requirement is for the users to be wearing them at the time of identification. Bravo believes that the adaptation of new devices is necessary for the further enriching of the classroom.

This will imply the automation of daily activities, resulting in benefits for both teachers and students. In this direction, Bravo is trying to improve our system towards the control of actions such as displaying slides, changing activities in the plan, or ending the class. To do this, researchers are working on a prototype sensor subsystem which allows us to detect the movement of a hand near the board at different distances from the bottom edge of this surface.

The Redcar & Cleveland College Model

The above article raises some interesting issues for the development of a new college. RFID technology is established within the commercial world and readily available. The opportunity to explore both security and teaching use could be grasped as an innovative project within the JISC framework and the new college could pioneer an effective approach to the development of a pervasive environment where students and staff take full advantage of computing as a tool with relief from the task of interacting with the device.

The approaching convergence of integrated systems, interactive learning environments and ubiquitous computing opens the door to an exciting future and the opportunity to embrace this in a new building will probably never be available again for a number of years.

G.T. Corfield
November 2006

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14 The use of ICT in Teaching and Learning:

A Review of Staff Issues

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January 2007

Abstract

The ability to use ICT effectively and appropriately is seen as essential to allow individuals to acquire and exploit information within their everyday activities. The purposeful use of ICT is consequently considered to be a vital requirement in today's information society and forms a significant part of most teaching strategies. This paper explores the findings of a literature search on the use of ICT in teaching (Scrimshaw, P. (2004); Becta (2004)) and a recent survey amongst college lecturers and senior managers in a medium sized North East Further Education College. It summarises teachers' perceptions of their current stage of development, their needs and priorities for further development, and their views of the factors which help or hinder them in their attempts to make effective use of ICT.

The literature reviewed and the college survey raised some important issues for a small to medium Further Education College. In the past the integration of ICT into a diverse curriculum has been attempted to be resolved by approaching the issues through staff development programmes. The college surveys carried out over two academic years indicate that there has not been a great deal of success in resolving the lack of ICT integration into teaching practice. Staff, although making some progress, indicate similar concerns to those observed in the Becta literature review.

This review therefore proposes an alternative strategy for ICT integration. It is suggested that the college considers working towards a much more ubiqitous environment for ICT use. The creation of a building wide wireless environment, with relevant devices and support available to both staff and students would enhance the integration of ICT as a pervasive resource. The current trend towards collaborative learning and the development of ICT as a social toolkit offers the opportunity for establishments like FE colleges to grasp the emerging technologies and create a much more exciting interactive learning world.

Introduction

The ability to use ICT[36] effectively and successfully is seen as essential to allow individuals to acquire and exploit information within their everyday activities. The appropriate use of ICT is consequently considered to be a vital requirement in today's information society and forms a significant part of most teaching strategies. A typical college curriculum incorporates the need for valid ICT and information literacy skills no matter what discipline area is taught. Such an approach has raised the question of what currently constitutes a learning environment (Pelgrum, 2000). In recent years there has been an increase in the availability of computer hardware and software in colleges and most now operate a virtual learning environment (VLE) to support the learning process (Mumtaz, 2000). However, it is also increasingly clear that having access to the technology does not necessarily mean that it will automatically be integrated as a resource within teaching strategies. This could be partly due to an uncoordinated approach which has not encouraged effective policies or planning to take place (Fabry and Higgs, 1997; Manternach-Wigans et al., 1999). On the other hand, it is also evident that much of the problems surrounding the lack of meaningful integration could be attributed to the lack of awareness or lack of confidence on the part of teaching staff. (Dawes, 2000; Larner and Timberlake, 1995; Russell and Bradley, 1997.)

Successful integration into the curriculum depends on teachers being convinced of the relevance of ICT to provide access to a broader relevant range of resources for themselves and students. (Cox, M., Preston, C., Cox, C; 1999). The potential impact of informed and effective use of ICT as a classroom resource has far wider implications than merely enhancing the immediate learning experience. (Harrison, C.et al; 2002). What are the skills and knowledge needs of teachers? What are their priorities for future development? What will encourage teachers to adopt ICT where appropriate in their professional lives as classroom practitioners, as planners and managers, and as learners?

[36] For the purposes of this study ICT is defined as any computer-based resources, networked and stand alone, including both hardware and software, currently available as teaching and learning resources.

This paper explores the findings of a literature review on the use of ICT in teaching (Scrimshaw, P. (2004); Becta (2004)) and a recent survey amongst college lecturers and senior managers in a medium sized North East Further Education College. It summarises teachers' perceptions of their current stage of development, their needs and priorities for further development, and their views of the factors which help or hinder them in their attempts to make effective use of ICT. The research is also part of a wider study to explore the development of an integrated knowledge system in the college based around the concept of a portal to communicate applications and management information and where ICT is a vital but transparent element in management practice.

Methodology

The initial approach to this study involved the exploration of texts that formed part of the Becta research carried out in August 2003 and updated in January 2004. Most of these texts report experiences in the UK and the United States, but evidence was also included in the Becta review from Australia, Canada, Denmark, France, Greece, Israel and the Netherlands. The Becta sources dealt with a wide range of cultural and organisational contexts, covering teachers and schools at different points in the introduction of ICT and were published over a ten-year period which means that the technological context also varied significantly. Having established the issues surrounding the barriers the researcher surveyed some 150 college staff regarding their ICT skills and current practice within a vocational FE college environment.

The method of analysis used was firstly to review the Becta and other texts to conceptualise what was involved in enabling successful use of ICT, and secondly to examine specific recommendations about, or illustrations of, ways of achieving this. Once a model of current practice had emerged, the researcher explored how this compared to experiences in the Further Education College. Statistical results are shown in Appendix A - E and a discussion of these findings with recommendations of potential solutions and a recommendation for a college ICT strategy follows.

The factors supporting the successful use of ICT

Within the literature review of texts on this subject, Becta concluded that there were a number of factors creating barriers to the successful use of ICT by teachers.

A very significant determinant of teachers' levels of engagement in ICT was, they claim, their level of confidence in using the technology. Teachers who have little or no confidence in using computers in their work will try to avoid them altogether. (Dawes, 2000; Larner and Timberlake, 1995; Russell and Bradley, 1997). This factor is very much evident in an FE college with a staff membership who teach across a very diverse mix of disciplines. The analysis of 141 staff ICT needs indicated the following skill shortfall:

- Logging into VLE and Intranet (51 requests)
- Using e-mail from home.(43 requests)
- Powerpoint; animating text and inserting images(40 requests)
- Sending an email with attachment.(23 requests)
- Open, read, & save attachment in an email.(16 requests)
- Creating website Favourites (19 requests)
- Creating and managing folders(29 requests)
- Drawing and inserting images & tables(28 requests)
- Page orientation and margins(19 requests)
- Copy & pasting text(18 requests)

Although most requests can be remedied by specific staff development programmes (see Appendix B), it indicates some concern as to staff engagement with basic ICT skills.

The claim that levels of confidence and therefore levels of ICT use are directly affected by the amount of personal access to ICT that a teacher has (Ross et al., 1999; Cox et al., 1999; Guha, 2000), the amount of technical support available (Cuban, 1999; Bradley and Russell, 1997), and the amount and quality of training available (Pina and Harris, 1993; Lee, 1997) was also supported in the survey of FE staff at this college. The college VLE survey indicated that staff were involved

with between one and five programmes with 50% staff teaching on four or more. The vast majority of these teachers acted as both course leaders and/or tutors (65%). When it came to VLE presence, 75% of staff had resources uploaded on the VLE, but on the other hand some 20% did not but would like to upload material.
In contrast, 5% indicating they did not want to use VLE technology at all. VLE statistics (see Appendix E) show a steady increase in both staff (instructors) and student use since September 2006. The decision to move the college "intranet" to the VLE environment seems to have encourage a more VLE pro-active approach by staff. When staff were asked how we could improve the use of technology within teaching and learning, 55% felt they did not have time to develop resources and 40% would like better access to ICT equipment but only 5% wanted ICT staff development time.

In contrast to the comments made by staff, it could be argued that the levels of access to ICT as a significant determinant in the use of ICT by teachers (Mumtaz, 2000), is not always the case. Even if adequate, equipment is available, it must be organised in such a way to ensure maximum access for all users (Pelgrum, 2000; Fabry and Higgs, 1997); a common failing in establishments like colleges who "zone" ICT equipment in laboratories or similar rooms or have limited resources in staff work rooms. A solution to this perceived lack of resource allocation needs exploring whether this be through the use of "personal" devices or the integration of facilities throughout the college teaching environments in a more innovative way.

A question of time and place?

The Becta review observes that teachers are sometimes unable to make full use of technology because they lack the time needed to fully prepare and research materials for lessons, particularly where this involves online or multimedia content. Time is also needed for teachers to become better acquainted with hardware and software. (Fabry and Higgs, 1997; Manternach-Wigans et al.., 1999.). This factor was similarly significant in the FE college survey (55% would like more development time) and suggests a more radical solution than merely reviewing allocated teacher hours for contact and development needs. One approach is to

consider invisible, everywhere computing that does not only live on a personal device, but is in the environment everywhere (M van't Hooft; 2006). A ubiquitous computing strategy within colleges would therefore offer the teacher access to resources as part of the learning environment. ICT would become as pervasive as paper resources and form an integral part of the teaching strategy.

This however has some impact on one of the Becta findings; technical faults and support of ICT equipment leads to lower levels of ICT use by teachers (Bradley and Russell, 1997; Cuban, 1999; Preston et al., 1999). Any radical change to ICT approaches would require an ICT strategy that included both technical expertise and a suitable digital repository supported by educationally competent researchers and developers (for example an e-learning support team?). However the subsequent effectiveness of integrating ICT into the learning environment would be immense.

On the other hand would such an approach fuel the Becta observation that resistance to change is a factor which prevents the full integration of ICT in the classroom. The literature review saw this resistance in terms of teachers' unwillingness to change their teaching practices, and also in terms of schools as institutions finding it difficult or being unable to re-organise in ways which facilitate innovative practices involving ICT (Albaugh, 1997; Cuban et al.., 2001). As a solution, and in line with a ubiquitous approach, it might be advantageous to consider a suitable redesigned desktop interface for teachers that is more meaningful and discipline related. Non IT teaching staff did indicate during follow-up discussions, that some had a fear of "computing" screens and this acted as a barrier to use.

Both the Becta review and the college survey supported the view that there is little evidence to support the statement that age affects levels of teachers' ICT use. Younger teachers are no more likely to make use of ICT in their work than their more experienced colleagues (Bradley and Russell, 1997).

On the other hand the college survey did not support the Becta findings that there is some evidence to suggest that teachers' gender has an effect on the degree to which they use ICT, with male teachers making more use of ICT than female teachers, and with female teachers reporting greater levels of computer anxiety than male teachers. (70% of the positive IT responses in the college survey were female and of a wide age range).

The Next step

The literature review and the college survey covered a great deal of ground, only part of which has been summarised in this paper. However some important issues have been raised for a small to medium Further Education College.
In the past the integration of ICT into a diverse curriculum has been attempted to be resolved by approaching the issues through staff development programmes. The college surveys carried out over two academic years indicate that there has not been a great deal of success in resolving the lack of ICT integration into teaching practice. Staff, although making some progress, indicate similar concerns to those observed in the Becta literature review and summarised using the following table

External barriers	Internal barriers
• Lack of access to resources • Lack of time • Lack of effective training • Technical problems	• Lack of confidence • Resistance to change & negative attitudes • No perception of benefits

Table1: Summary of barriers to effective ICT use taken from Becta review of literature

This paper therefore proposes an alternative strategy for ICT integration. It is suggested that the college considers working towards a much more ubiquitous environment for ICT use. In 2008, this FE College is moving into a new building and consequently has the opportunity to review its ICT strategy in an innovative and radical way. ICT should be seen as a resource available everywhere. The creation of a building wide wireless environment, with relevant devices available to both staff and students would allow the integration of ICT as a pervasive transparent resource.

In addition the college might consider the need for ICT support in a similar way to that of student services or reprographic services and create a support network that provides content to teaching staff in a digital format easily and readily available over a college wide network – whether that is via a virtual learning environment or some other arrangement using digital repositories and access facilities. The current trend towards collaborative learning and the development of ICT as a social toolkit offers the opportunity for establishments like FE colleges to grasp the technology and create a much more exciting interactive learning world.

Discussions with teaching staff seems to indicate that lack of effective training is not a major issue. What is more predominant is the lack of time to explore the use of IT as well as a lack of confidence in using ICT resources.
In addition to providing teaching staff with relevant digital material as discussed above, further research should be undertaken in exploring the sort of ICT interface teachers would like in order to eliminate the technical feel to ICT screen based resources. A teaching or learning gateway for staff that provides an interface that is simple, easy to use and relevant to their everyday needs seems to be an effective solution for engaging the non ICT user. Could the college develop a desktop for teachers that provides access to all the resources needed to undertake their teaching and learning roles. This might take the form of simple icons that are meaningful and relevant or even a partitioned screen which reflects the sorts of tasks with which teaching staff are engaged.

In conclusion, this paper has reinforced the findings of the Becta literature review but raised some questions surrounding the internal barriers to ICT use surrounding teachers perceptions and aspirations.

G.T. Corfield

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Appendix A ICT Skills Audit form

Minimum ICT Skills Audit for Academic Staff September 2005

Please tick the appropriate column

Email: using the email system to perform the following operations	**Confident**	**Not sure**	**Need support**
Log onto email system in college			
Log onto email from home			
Open, read and save an attachment			
Send an email with an attachment			
Delete unwanted emails			
Search for an email in the Inbox			
Word Processing: using Word to perform the following operations			
Set page orientation and margins			
Edit, save and print a document			
Use bold, italic and underlined text			
Change the font and font size			
Change the alignment			
Insert a table			
Insert an image			
Use the drawing toolbar to produce a simple drawing			
Copy and paste text within the same document			
Copy and paste text from one document to another			
Copy and paste text from the Internet into a document			
Use the spellchecker			
Internet: Use an Internet browser to:			
Locate a website given its web address			
Save an address as a Favourite			
Use a search engine to search using one or more keywords			
Use a search engine to search using a phrase			
Download and read an Acrobat(pdf)file			
Log onto the College's VLE and access a course			
Access the staff area of the Intranet			

File Management: Use a computer's operating system(Windows) to :			
Log onto the College's network			
Create a folder			
Save a file from an application into the above created folder			
Logout			
Powerpoint: Use Powerpoint to:			
Create a series of slides			
Animate text in slides			
Insert an image in a slide			
Change the order of slides			

Appendix B ICT Skills audit results

Minimum ICT Skills Audit for Academic Staff September 2005 141 staff returns

Email: using the email system to perform the following operations	Need support	% of staff
Log onto email system in college	2	1.42%
Log onto email from home	41	29.08%
Open, read and save an attachment	16	11.35%
Send an email with an attachment	23	16.31%
Delete unwanted emails	2	1.42%
Search for an email in the Inbox	6	4.26%
Word Processing: using Word to perform the following operations		
Set page orientation and margins	18	12.77%
Edit, save and print a document	3	2.13%
Use bold, italic and underlined text	3	2.13%
Change the font and font size	3	2.13%
Change the alignment	4	2.84%
Insert a table	17	12.06%
Insert an image	23	16.31%
Use the drawing toolbar to produce a simple drawing	33	23.40%
Copy and paste text within the same document	11	7.80%
Copy and paste text from one document to another	21	14.89%
Copy and paste text from the Internet into a document	18	12.77%
Use the spellchecker	1	0.71%
Internet: Use an Internet browser to:		
Locate a website given its web address	5	3.55%
Save an address as a Favourite	19	13.48%
Use a search engine to search using one or more keywords	5	3.55%
Use a search engine to search using a phrase	9	6.38%
Download and read an Acrobat (pdf) file	20	14.18%
Log onto the College's VLE and access a course	51	36.17%

Access the staff area of the Intranet	21	14.89%
File Management: Use a computer's operating system(Windows) to :		
Log onto the College's network	27	19.15%
Create a folder	28	19.86%
Save a file from an application into the above created folder	31	21.99%
Logout	19	13.48%
Powerpoint: Use Powerpoint to:		
Create a series of slides	32	22.70%
Animate text in slides	45	31.91%
Insert an image in a slide	42	29.79%
Change the order of slides	40	28.37%

Audit Summary of findings and Staff development Strategy

The audit involved 141 full-time and part-time staff (96%) with 6 returns (4%) still outstanding

ANALYSIS OF STAFF SUPPORT PRIORITIES:

- **Logging into VLE and Intranet(51 hits)**
- **Using e-mail from home.(43 hits)**
- **Powerpoint; animating text and inserting images(40 hits)**
- **Sending an email with attachment.(23 hits)**
- **Open, read, & save attachment in an email.(16 hits)**
- **Creating website Favourites (19 hits)**
- **Creating and managing folders(29 hits)**
- **Drawing and inserting images & tables(28 hits)**
- **Page orientation and margins(19 hits)**
- **Copy & pasting text(18 hits)**

STAFF DEVELOPMENT STRATEGY 2005:

AREAS FOR DEVELOPMENT:

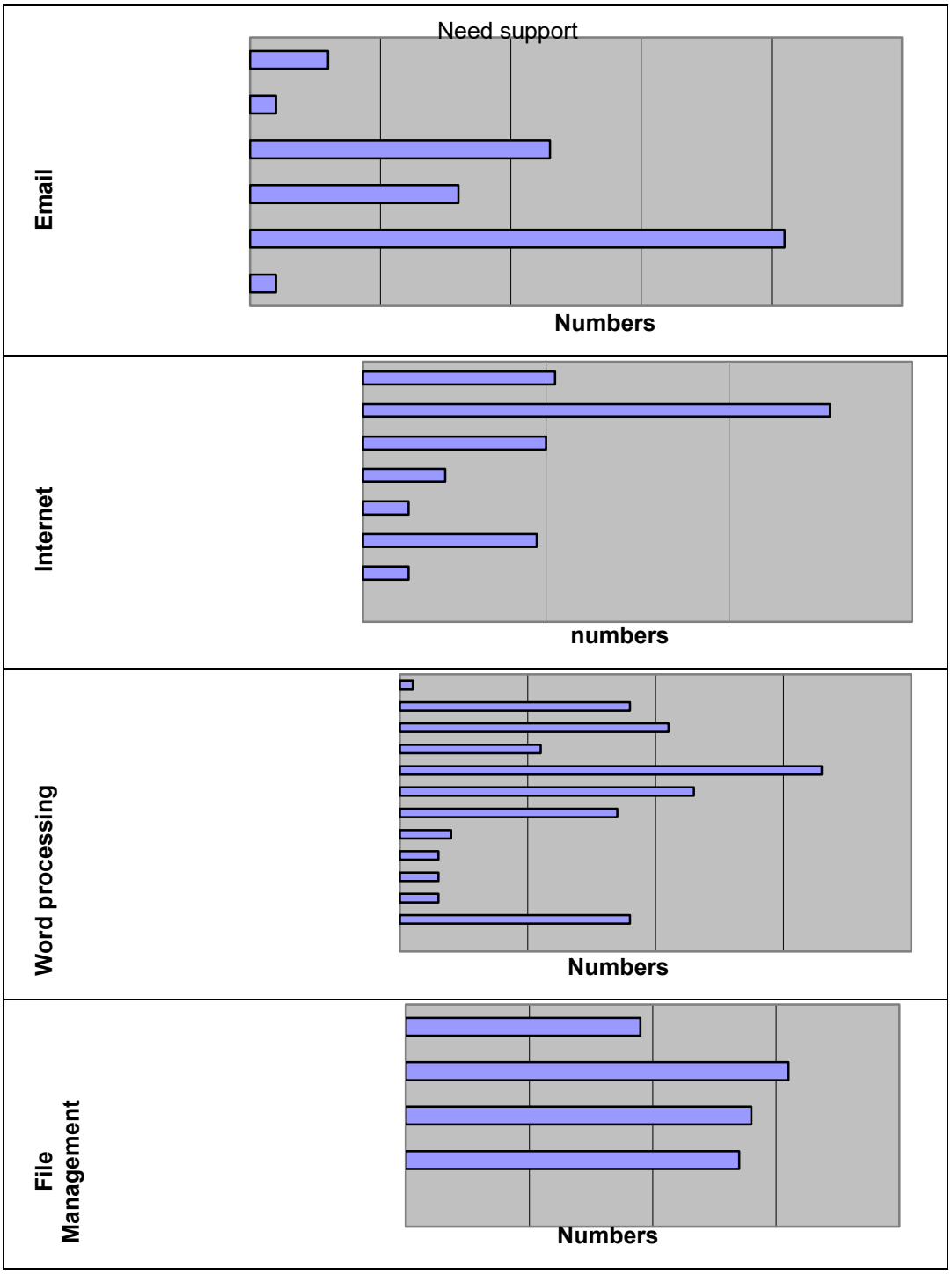
- **Accessing College VLE and Intranet.**
- **Blackboard familiarisation.**
- **Powerpoint.**
- **Email from home.**
- **Interactive whiteboard use.**
- **File Management.**
- **Access to the Internet.**

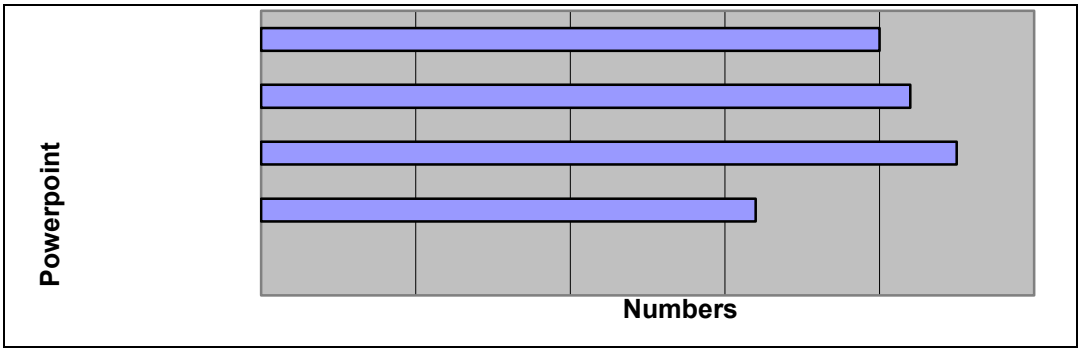
DELIVERY:

Flexible approach through:

- **Department/Curriculum Area.**
- **Cross College.**
- **"Admin./Desk" time across the timetable.**
- **Lunchtime.**
- **Twilight time.**
- **CPD "slots"**
- **"Voluntary and compulsory" staff induction programmes**

Appendix C Graphical Representation of skill Audit Results




Powerpoint
Numbers

Appendix D VLE staff survey Jan 2007

Name	VLE staff survey
Instructions	Please answer the following questions as appropriate Thank you

Question 1 Opinion Scale/Likert

How many DIFFERENT courses do you teach on. (A course for example would be BTEC First Diploma Media)

Answers	Percent Answered
One	10%
Two	25%
Three	15%
Four	30%
Five or more	20%
Unanswered	0%

Question 2 Opinion Scale/Likert

What is your main role on these courses

Answers	Percent Answered
Course Leader	25%
Tutor	25%
Course Leader/Tutor	40%
Other	10%
Unanswered	0%

Question 3 Opinion Scale/Likert

Do you have teaching and learning resources on Blackboard

Answers	Percent Answered
Yes for all courses I teach	25%
Yes for some courses I teach	50%
No but would like to (unable to use Blackboard)	20%

Do not want to use Blackboard	5%
Unanswered	0%

Question 4 Opinion Scale/Likert

If you do not use Blackboard please indicate a reason

Answers	Percent Answered
Unable to use Blackboard (no training)	0%
Have no time to create resources	30%
Do not see the value of VLEs	0%
Have difficulty accessing a PC	15%
Other	15%
Unanswered	40%

Question 5 Opinion Scale/Likert

If you do use Blackboard, what is the MAIN format of your resources

Answers	Percent Answered
Text based resources (hand-outs, assignments, notes etc)	50%
Interactive material (quizzes, forms, games etc.)	0%
Interactive or media based resources (videos, media rich documents, nln material etc.)	0%
Communication resources (discussion forums, chat etc.)	0%
A mixture of all forms (interactive, text, media etc.)	30%
Don't know?	10%
Unanswered	10%

Question 6 Opinion Scale/Likert

How could we improve the use of technology within teaching and learning

Answers	Percent Answered
Better access to computer based resources for staff/students	40%
Staff development which is ICT related	5%
Information about what ICT resources are available	0%

Time to develop ICT resources	55%
Happy as I am - do not want ICT resources	0%
Unanswered	0%

Question 7 Opinion Scale/Likert

Which Faculty do you work in?

Answers	Percent Answered
Health care and Education	20%
Business Information & Technology	20%
Engineering, Process and manufacturing	15%
Built Environment	10%
Art, Leisure, Public & Salon Services	10%
Learning Support	25%
Unanswered	0%

Question 8 Opinion Scale/Likert

Please indicate your gender

Answers	Percent Answered
Male	40%
Female	60%
Unanswered	0%

Appendix E Overall VLE Usage statistics

Number of Active Courses	97
Number of Active Organizations	0
Number of Active Users	600
Number of Users	4135
Number of Instructor/Leader Users	192
Page Views on Most Active Date	4929
Average Page Views Per Day	704

Average Users Per Month

	Users	Student Users	Instructor Users
2006-01	4622	1418	38
2006-02	4658	1474	73
2006-03	4677	1533	82
2006-04	4684	1550	84
2006-05	4690	1557	85
2006-06	4693	1560	85
2006-07	4900	1769	119
2006-08	3873	1441	129
2006-09	2997	1749	134
2006-10	3987	3879	143
2006-11	4076	3942	161
2006-12	4127	3975	183

Average Active Courses / Organizations Per Month

	Courses	Active Courses	Organizations	Active Organizations
2006-01	18	14	0	0
2006-02	48	45	0	0
2006-03	64	47	0	0
2006-04	68	43	0	0
2006-05	69	41	0	0
2006-06	69	37	0	0
2006-07	72	49	0	0
2006-08	73	44	0	0
2006-09	76	55	0	0
2006-10	87	68	0	0
2006-11	95	69	0	0
2006-12	111	89	0	0

Page Views Per Month

	Average Page Views	Average Course Views
2006-01	266	230
2006-02	326	247
2006-03	348	282
2006-04	299	272
2006-05	783	754
2006-06	268	234
2006-07	379	320
2006-08	213	156
2006-09	1506	1371
2006-10	1335	1248
2006-11	1599	1511
2006-12	1407	1348

15 Collaborative Workspaces

G.T. Corfield

October 2007

Executive Summary

A collaborative workspace or shared workspace is an inter-connected environment in which all the participants in dispersed locations can access and interact with each other just as inside a single entity. The environment is supported by electronic communications and groupware which enable participants to overcome space and time differentials. These are typically enabled by a shared mental model, common information, and a shared understanding by all of the participants regardless of physical location.

Microsoft Office Groove 2007 is a program that helps teams work together dynamically and effectively. The use of Groove within the college would offer a new and exciting dimension to staff collaborative working. Individual teams could create interactive workspaces for course use (even extend it to student use if the opportunity arose).

Management information could be freely integrated into every staff members PC desktop with instant access and updating.

The following link is a Microsoft demonstration of the use of Groove and provides a useful overview of the package
http://office.microsoft.com/en-us/groove/HA101672641033.aspx
As staff become familiar with the new Office 2007 suite it would be an ideal time to undertake some trials on the use of Groove. A group of Course Team members could be given the opportunity to collaborate using the software at the same time run similar trials with the team interacting with CIS and secretarial services for documentation workflow.

The development of more complex applications could then be considered for migration into the new building and the possible purchase of Groove Server and SharePoint Server that would expand the application into common storage and other secure environments.

Introduction

As part of research into the use of collaborative tools for teaching and learning, I have been investigating a range of technologies for staff networking and interactivity.

The college has a number of applications that staff access as part of their daily roles. The opportunity to develop an integrated system is potentially one that could offer a much more effective and efficient working environment.
Since many applications are client and not web based, this approach creates technical problems when trying to access resources at a distance. The college has invested in a range of tools for monitoring performance and some progress has been made in creating a “portal” approach to accessing these within the college. What would be advantageous is the ability to share resources at anytime and anywhere. Course teams have standard documents that they use in their practice as do managers. The ability to create a shared workspace and invite participants to collaborate within this space would enhance staff’s performance tremendously. Some attempt has been made to create such an approach with the implementation of the college Document Management System (DMS). However this tool is primarily an archiving application and not specifically designed to allow users to interact with stored documents. What would be more advantageous is a system that allows staff the ability to work on their own PC and share work across networks in a secure environment. A system that is simple to use, requires no elaborate training and can be accessed from any location would be ideal.
This paper offers the opportunity for the college to implement a package freely available within the Microsoft Office 2007 suite that can do just that. The following description provides an overview of Microsoft Office Groove 2007, a collaboration software program that helps teams work together dynamically and effectively, without compromising integrity, even if team members work for different organizations, work remotely, or work offline.

The Concept of Collaborative working

A collaborative workspace or shared workspace is an inter-connected environment in which all the participants in dispersed locations can access and interact with each other just as inside a single entity. The environment may be supported by electronic communications and groupware which enable participants to overcome space and time differentials. These are typically enabled by a shared mental model, common information, and a shared understanding by all of the participants regardless of physical location.

Microsoft Office groove 2007

Using the above definition of collaborative workspace, Microsoft Office Groove 2007 is a program that helps teams work together dynamically and effectively, even if team members work for different organizations, work remotely, or work offline. Some of the applications described in the package are:

- **Work together dynamically**
    - Keep your team, tools, files, and information in one place.
    - Create a Groove workspace right on your computer with two clicks.
    - Invite your colleagues, partners, and customers without worrying about networks or servers.
    - Add tools to support your team's evolving needs: file-sharing, discussions, meetings, business forms, and more.
- **Stay productive anywhere, online or offline**
    - Update team information in the office, at a customer site, on the road, and from home.
    - All Groove workspaces, tools, and information are stored right on your computer.
    - Work productively anywhere you've got your laptop, whether you're connected to a network or not.
    - Automatic synchronization keeps you and your team members up to date.

- **Streamline content creation**

    - Share, revise, and publish files all from a single workspace.
    - Exchange document changes with your team members easily and efficiently.
    - Use integrated alerts and contextual communication tools to shorten review cycles.
    - Publish completed documents to SharePoint document libraries with one click for workflow, storage, and retrieval.

Groove in action

The use of Groove within the college would offer a new and exciting dimension to staff collaborative working. Individual teams could create interactive workspaces for course use (even extend it to student use if the opportunity arose). Management information could be freely integrated into every staff members PC desktop with instant access and updating.

The following link is a Microsoft demonstration of the use of Groove and provides a useful overview of the package

http://office.microsoft.com/en-us/groove/HA101672641033.aspx

Conclusion

As staff become familiar with the new Office 2007 suite it would be an ideal time to undertake some trials on the use of Groove. A group of Course Team members could be given the opportunity to collaborate using the software at the same time run similar trials with the team interacting with CIS and secretarial services for documentation workflow.

The development of more complex applications could then be considered for migration into the new building and the possible purchase of Groove Server that would expand the application into common storage and other secure environments.

G.T. Corfield

October 2007

16 The Use of Second Life in Education

Feasibility study and review of current research

Into the use of virtual worlds in teaching and learning

G.T. Corfield

October 2007

Abstract

Second Life is a completely user-generated 3D environment that comes with relatively easy-to-use building and scripting tools that anyone can learn. This makes it an ideal platform for engaging students in creating their own learning activities, experiences and environments, and not just be passive consumers of learning. It is possibly one of the most exciting innovations available to an educationalist that has been developed in the last few years.

A number of HE and FE institutes are beginning to develop the use of SL in marketing, teaching and learning and this development is predicted to grow enormously over this coming academic year. This paper reviews a recent survey of HE and FE research into the educational aspects of Second Life. The survey concludes that most HE and FE academics researching and developing SL applications are enthusiastic about its potential and see value in its use within education.

In terms of Redcar & Cleveland College it is suggested that we could be part of this exciting development with a small amount of development funding (£1500-£2000 - communication costs mainly). The report therefore concludes that a small SL trial should be undertaken with a group of 5-10 members in order to explore issues and problems associated with the package with a view of developing this aspect of teaching and learning in the future. Purchase or lease of dedicated Second Life private island(s) for the college could then be evaluated having explored the full cost implications and security issues.

Background

Launched in 2003, Second Life is an online 3D virtual world created by Linden Labs. Much like massively multiplayer games, Second Life provides an immersive environment for users to play and interact in. However, Second Life goes beyond a game, allowing residents to build and create their own environments; and interact with others from around the globe. Second Life is an internet-based 3-D virtual world developed by the Linden Lab. The users are referred to as “residents” and their number is growing explosively, currently over 4,000.000 (Feb, 2007). A downloadable client program enables users to interact with each other through modifiable, motional avatars.


Second Life is not a game in the traditional meaning of the word – it’s not about gaining points, winning or strategizing (although those activities are available, too, in parts of the virtual world dedicated to it). The residents explore, meet other residents, make friends and socialise. They may participate in individual and group activities, How one spends their time in Second Life is very much a personal choice. The residents create most of the content of the Second Life metaverse by building and making anything from houses to vehicles, animations to avatars, pets to plants. The result is a rich, diverse virtual world with an overwhelming amount of content. Exploring it can be fascinating, baffling and on occasion even upsetting. The residents can buy items and services from one another. Second Life has its own economy and a currency referred to as Linden Dollars (L$) which is exchangeable for US Dollars in a marketplace constituting users, the Linden Lab and real life companies. Yet spending money isn’t necessary to experience Second Life, as free accounts are available. For more information, see: The Official Second Life Site: www.secondlife.com Second Life in Wikipedia: en.wikipedia.org/wiki/Second_Life

Key Features of Second Life:

The main features of Second Life are:

- Completely user-generated content - it's an open world that gives users creative control.
- Relatively easy-to-use built-in building and scripting tools allow users to create almost any object or any experience they can imagine.
- Customisable avatars - users can create highly individualised 'virtual selves'.
- Users own the intellectual property for their creations.
- A real in-world economy with real money transfer makes it easy to buy and sell creations (and profit from them). More than $5 million USD is transacted between users every month.
- Audio and video can be streamed from the web and played in-world.
- Linden Labs takes a hands-off approach to governance, allowing the residents to self-govern (although residents are expected to abide by the Terms of Service and Community Standards).

In short, Second Life is an environment where users are designing, conducting business, building relationships, entertaining, learning, and living their virtual lives.

Educational use of SL

Second Life is a completely user-generated 3D environment that comes with relatively easy-to-use building and scripting tools that anyone can learn. This makes it an ideal platform for engaging students in creating their own learning activities, experiences and environments, and not just be passive consumers of learning.

A report by **John Kirriemuir (Eduserv Foundation; July 2007)** states that a growing number of UK academic institutions, departments and groups are at different stages of SL development. There has been a considerable increase in activity between March and July 2007, marked by the beginning and end of his HE survey.

The appendix lists over 40 UK Universities and Colleges that have a building, land or island on the grid, many appearing in the last few months and not yet open for public visiting while they are being developed.

While some institutions are openly and actively developing in SL, others are doing so less publicly, and others still are either watching developments before making a decision, or being slowed down by institutional bureaucracy. Support services for Higher and Further Education are noting a high level of consideration:
Several institutions are interested in SL from the income stream perspectives of marketing
(future students) and alumni (previous students): It will be interesting to observe how these different perspectives – marketing, teaching and learning – drive institutions' developments on the grid.
One point that came through very strongly in this survey was that many academics are developing in SL with a view to providing facilities for the 2007-2008 academic year. The end of the 2007-08 academic year, therefore, should provide an opportunity to take stock of these developments and discover how widespread and "mature" they are. At that point, there should be sufficient qualitative and quantitative data to provide a more considered analysis of the effectiveness or usefulness of SL in the provision of learning services within UK education.

Functionality and support

John Kirriemuir's (Eduserv Foundation; July 2007) survey makes some observations on the functionality of SL and these are summarised below:

Meeting places

A key aspect of SL is the ability to communicate with other people (through their avatars) in a variety of ways. Examination of islands being developed by academics shows that most have some kind of mutual seating area, be it outdoor benches (often in a group arrangement so most people can see who is speaking without turning around), or a room (often resembling a real life (RL) room) with all the seating facing a speaker.

Popular media

Certain specific media proved popular, being installed in their SL area by a number of academics:

- Many of the UK Higher Education constructs incorporated **video screens**. For example, in the University of Edinburgh Management School, prospective students can watch a video about Edinburgh and the university.
- Nearly as popular as video displays, amongst the respondents, were facilities to present **PowerPoint and slideshows** within SL.
- **XML and RSS feeds** were installed by several academics, allowing users to access the latest content from specific websites.
- **Visitor counters, and sensors** to log avatar presence.
- **Interactive message board or whiteboard.**
- **Links to web**sites were present in most academic SL developments. This is often presented as a card or mock laptop. For example, the University of Plymouth installation has a “laptop displaying a page from Contraception Education - clicking the laptop in-world will launch the corresponding web page”.
- **Direct links to academics**, e.g. pressing a button sends an IM or email to a member of staff.
- **Freeview TV**, usually surrounded by an auditorium in the same way as video-streamed meetings, is available in a few locations.
- Some academic developers, such as the Open University, put a heavy emphasis on functionality that “captures” various media from an in-world session.

Other media

A mixture of “off-the-shelf” media, and functionality scripted by academics and hired coders, can be found in the various islands and buildings under development. These include:

- e-books
- a flickr browser
- a synonym cloud generator
- an ansaphone
- interactive sculptures
- Freeview TV
- a visitor survey in-world, where user feedback is then sent via e-mail to an individual or project team

Future functionality development

Again, the Open University are keen to integrate the in-world aspects of SL to other materials associated with their students:

“The holy grail will be when we can link directly to e-portfolios and record assessments.”

It seems increasingly easy to extract content from SL and “slurp” into another application. For example, Katharine Berry [Berry, K., 2007] has produced an ajax-based SL client that works, to varying degrees, in different browsers without the need for the standard SL viewer. Such access has implications for developing information transfer between SL and other net-based applications.

Support media outside SL

There is a range of online media outside the grid which assists both developers and users of SL. Linden Labs actively promote the use of SL for education and learning support [Second Life Education 2007], providing mailing lists, a wiki, active promotion and special rates for in-world land used for educational purposes [e.g. Campus: Second Life, 2007]. Some in-world locations where UK Higher and Further Education activities are taking place are listed in the appendix.

There is a growing body of conferences dedicated to education, learning and research in SL. Increasingly, conferences are run in RL and broadcast (sometimes with an element of interaction) in SL. Linden support 17 mailing lists [Second Life, 2007], including three (Educators, Educatorsandteens, In-world education) of relevance to people in UK Higher and Further Education. JISCmail [JISCmail 2007] recently started supporting a list for educators. Many developers of educational facilities in SL also run blogs or (to a lesser extent) wikis, where their work is chronicled. For example, there are blogs describing the work at:

- Edinburgh University [Bing, 2007]
- Leeds College of Art and Design [Robinson, 2007]
- Liverpool University [Miller, 2007]
- Loughbourgh University [A Second Life Campus for DIS, 2007]
- University of Plymouth [Boulos, 2007a]

The University of Hertfordshire has a wiki [Virtual University of Hertfordshire, 2007] for team members to provide latest news on developments. This is linked to a

development forum [FEIS Technical Forum, 2007] for discussion between the island developers.
Other Web 2.0 applications or social networking services contain some element of SL interest or crossover.

Facebook in particular has “groups”, where like-minded people can discuss topics of mutual interest. Several such groups, including “K-12 Educators in Second Life” and “Second Life for Educators” are accumulating members. However, topic discussion activity is low, indicating that most people joining are doing so out of curiosity or are just “lurking”.

Usage, impact, issues and problems

Usage

SL provides some metrics on how many visitors an area has. Some developers have also designed systems to keep a log or tally of visitors to their land or facility. The open nature of SL makes for a different approach to attendance at events, where access is possible to anywhere where the land owner has not placed restrictions. For events such as in-world courses and meetings, this has implications for both keeping wanted people “in” (when there may be more interesting content elsewhere in SL or RL), and keeping unwanted people “out”.

Impact

Even though many of those surveyed by John Kirriemuir’s (Eduserv Foundation; July 2007) were still in the development phase, various impacts were reported. Several respondents reported a positive impact from the perspective of collaboration with other academics, both within their own institution and elsewhere in the wider education sector:

Problems

Most of the respondents didn’t report any problems as yet; several pointed out that, as they were in development mode, they hadn’t yet tested in scaled-up

conditions. One respondent compared his experience of teaching a class in SL from his home, with that of teaching it in the (real) classroom:
In some institutions, specific senior people have not only approved the development, but are also actively participating. Many respondents who were developing in SL had recognition However, in at least one UK Higher Education institution, SL activity by staff has been stopped by the press/marketing office until university management are comfortable with the development from a marketing and branding perspective.

Budgetary and financial approval can also be a problem, though the number of UK educational institutions who have purchased an SL island and/or are developing on one indicates this is usually surmountable. As previously mentioned, one approach being taken by some academics is to undertake their SL development "invisibly", or as independently from their host institution as possible. However, this does not solve the problem of official funding for an island.

Most of the technical issues concern using PCs powerful enough to develop within SL at a reasonable speed, and having access to ports needed for activities such as teleporting.
From the survey responses, two observations can be made:

1. Successful SL developments usually seem to be the product of a determined academic, and/or have received the support of senior university management early on.
2. SL developments are more prevalent in colleges and the "newer" universities (82% of responses from active developers), rather than the "older" universities (18% of responses).

Why this was is unclear; possibilities include:

1. Colleges and "new" universities having more vocational-oriented subjects that can take obvious advantage of SL.

2. Additional, accumulated bureaucracy in older universities that is not (yet) present in “new” universities.

Time

It is difficult to quantify how much time is spent, or needs to be spent, on a development in SL.
Factors include:

- Structure and artefact planning and research.
- The developers’ level of experience.
- The ambitiousness and complexity of the construction.
- The extent of testing and promotion.

However, most of the survey respondents had invested significant amounts of work time to create and support structures and activities within SL: From the survey, it is evident that the large majority of staff do not restrict their in-world time to just their work hours in RL. It is clear that there is a high level of enjoyment and satisfaction among SL developers, with many carrying on their SL activities at home, in the evenings and at weekends.

Funding

To develop something in SL requires an area of land. Funding is also required for other in-world costs, such as search listing, apparel and items constructed in SL by third-party developers.

There are a number of costs outside of SL that also need to be factored in:

1. P**C use**. Though the SL “viewer” software is free, high specification PCs are usually required in order to carry out in-world development at a reasonable speed.

- **Staff time**. As the previous section shows, staff time is often significant, thus necessitating a large financial cost within the project.

- **Second Life is free in the public domain** but does require a separate internet connection (for college security reasons and would cost in the region of £800p.a.). Purchase of **private** basic sized land costs around **$1675** with a monthly maintenance fee of **$295**. (Large University sites are running at a cost of £20,000). The pricing policy is not complex but does depend on use and needs. Discounts for educators (50%) are available and more detail can be found at:

  Education sites in Second Life
  http://secondlifegrid.net/programs/education#CampusSL

Respondents to the survey indicated a variety of sources of funding for their development within SL. Some academics obtained funds from grants and awards: Some institutions, such as Coventry University and Bromley College, have invested significant internal money into their SL development: Other academics have obtained money from several different internal sources: Several other colleges and universities are benefiting from Education UK Island [Education UK Island, 2007], which offers space and an education land grants programme. For the forthcoming academic year, this programme received three times as many applications as awards were available.

Conclusions and Recommendations

Second Life is a completely user-generated 3D environment that comes with relatively easy-to-use building and scripting tools that anyone can learn. This makes it an ideal platform for engaging students in creating their own learning activities, experiences and environments, and not just be passive consumers of learning. It is possibly one of the most exciting innovations available to educationalists that has been developed in the last few years.

A number of HE and FE institutes are beginning to develop the use of SL in marketing, teaching and learning and this development is predicted to grow enormously over this coming academic year. Most HE and FE academics researching and developing SL applications are enthusiastic about its potential and see value in its use within education.

The way forward for R&CC

Redcar & Cleveland College could be part of this exciting development with a small amount of development funding (Communication costs mainly). The potential uses are wide and could cover the following aspects:

- Collaborative learning (virtual group work, meetings and discussions).
- Scenario teaching (virtual case studies, activities).
- Staff development sessions (Health and safety scenarios, First Aid, building evacuation etc).
- College walk-through and virtual maps.
- Media coursework development.
- Marketing promotions, exhibitions and displays.

The list is endless and depends on the creativity of the developers. It is therefore suggested that a small SL trial should be undertaken with a group of 5-10 members in order to explore issues and problems associated with the package with a view of developing this aspect of teaching and learning in the future. Purchase or lease of dedicated Second Life private island(s) for the college could then be evaluated having explored the full cost implications and security issues.

G.T. Corfield

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Appendix

Some SL developments within UK Higher and Further Education institutions.

The “Cat” column follows the framework used in section 2 of the report:

1. Thinking about it but not planning – not included in the table below
2. Actively planning an SL presence
3. Researching within SL
4. Developing tools within SL
5. Staging an exhibition
6. Departmental or centre presence
7. SL providing support structures for a course
8. Building a campus-wide presence

= islands or developments not yet accessible to everyone.

Institution	Contact / Leader	Cat	URL or SLURL
# Anglia Ruskin University	Mike Hobbs	7 / 8	secondlife://Anglia%20Ruskin%20University/128/128/0
Ashton Sixth Form College	Sandra Taylor	2	-
Bedfordia University	??	8?	secondlife://Bedfordia/229/201/23
Bromley College	Clive Gould	6 / 8	secondlife://Daydream%20SE%20Islands/206/40
# Coventry University	Maggi Savin-Baden	6 / 8	secondlife://Coventry%20University/148/138/37/
# De Montfort University	??	??	secondlife://De%20Montfort%20Island/109/101/27 or possibly secondlife://DMU/128/128/0
Derby University	Simon Bignell	3 / 8	secondlife://Education%20UK/36/145/23 secondlife://Education%20UK/241/94/23
Edinburgh University	Shale Bing Fiona Littleton Hamish MacLeod	6 / 7 / 8	http://vue.ed.ac.uk secondlife://Vue/195/86/27
Elmwood College	Pauline Randall	2	-
Glamorgan University	Cameron Mitchell	3	http://learning.weblog.glam.ac.uk/posts/show/73
# Glasgow Caledonian Uni.	??	8?	secondlife://Glasgow%20Caledonian/190/62/27
Goldsmiths, London University	Matt Ward	4	http://news.bbc.co.uk/1/hi/education/6609333.stm
Hertfordshire University	Andrew Marunchak	8	secondlife://University%20of%20Hertfordshire/122/76/26
# Huddersfield University	Cheryl Reynolds	2 / 3	secondlifeproject.pbwiki.com secondlife://Queensgate/128/128/0
Hull University	Toni Sant	2 / 6	secondlife://Education%20UK/105/71/41
Imperial College London	??	6 / 8	secondlife://Imperial%20College%20London/143/124/30
# Lancaster University	??	8	secondlife://Lancaster%20University/128/128/0
Leeds College of Art and Design	Annabeth Robinson	5	http://ddmcollective.blogspot.com/ secondlife://Gourdneck/170/181/120

Leeds Metropolitan University	Ian Truelove	5 / 7 / 8	secondlife://LeedsMet/128/128/0
# Leicester University	Gilly Salmon	2	secondlife://Media%20Zoo/125/128/23
Liverpool University	Peter Miller	4	http://tidalblog.blogspot.com secondlife://Second%20Nature/181/215/24
# Liverpool Hope University	??	8?	secondlife://Liverpool%20Hope/27/168/27
# Loughborough University	James Dearney	6 / 8	http://www.dis-sl.blogspot.com/ secondlife://DISland/92/159/30
# London College of Communication	Andy Savery	2	secondlife://LCC/140/133/30
London College of Fashion	Julia Gaimster	5	secondlife://London%20College%20of%20Fashion/137/194/25
Newcastle University	Joanna Berry	7	secondlife://Ebusiness/170/110/26 http://www.ncl.ac.uk/nubs/staff/profile/joanna.berry
Norwich City College	??	??	secondlife://Education%20UK/241/171/21
Nottingham University	Thomas Chesney	3 / 6	http://www.nottingham.ac.uk/shared/shared_exchange/pdf/June07_full.pdf
Nottingham Trent University	David Jukes	7	secondlife://Trent%20Island/83/210/24
Open University	Jacquie Bennett Peter Twining	6 / 7	http://schome.open.ac.uk/wikiworks/index.php/Schome secondlife://SchomeBase/128/128/0
# Oxford University	??	8?	secondlife://University%20of%20Oxford/131/121/47
Paisley University "Second Scotland"	Daniel Livingstone	5 / 6 / 7	secondlife://Vesuvius/185/92/27 secondlife://virtuALBA/56/46/27
Plymouth University	Maged Kamel Boulos	7	http://www.sl-sexualhealth.org.uk secondlife://Education%20UK/31/63/23
Portsmouth University	Jane Chandler	??	secondlife://Teaching%202/32/60/29
Sheffield University	Sheila Webber	6	secondlife://Eduserv%20Island/203/237/50
Staffordshire University	Glynn Skerratt	3	secondlife://Education%20UK/194/167/22
Strathclyde University	Paul Maharg Scott Chase	2 / 7	-
# Sunderland University	??	8?	secondlife://University%20of%20Sunderland/131/121/47
# Ulster University (Magee Campus)	??	8?	secondlife://University%20Ulster%20Magee/162/82/30
Surrey University	Aleks Krotoski	3	http://mypages.surrey.ac.uk/psp1ak secondlife://Hyperborea/200/100/22
# Warwick University	Mark Childs Maths Dept.	3 6	http://www.tinyurl.com/ypdjkc secondlife://Warwick%20University%20Maths/128/128/0
# Wolverhampton University	Crispin Dale	3	Island purchased
York College	Martin Harmer	5	http://www.tinyurl.com/3crujv

It should be stressed that this table forms an incomplete profile of SL developments within UK HE and FE. The Simteach wiki [Institutions and Organisations in SL, 2007] also lists the following as having a presence:

- Sheffield Hallam University
- University of Surrey
- University of Wales in Newport

It should also be noted that SL developments in UK HE and FE are moving rapidly; this table provides a snapshot for the second week of July 2007.

17 Ubiquitous Computing - the third wave

A perspective for future development

George Corfield

February 2008

Contents

Summary

Ubiquitous computing is roughly the opposite of virtual reality. This paper explores the progress made by Redcar & Cleveland College in developing a blended learning approach and offers some recommendations for future development of the concept of a ubiquitous college.

Over the last 5 years, the college has embarked on a technological path that has seen the introduction of desktop computing and virtual learning environments. Staff struggle with the concept of desktop computing in terms of teaching practice other than a means for creating electronic resources. Electronic management information systems, coupled with electronic document management systems are clearly creating a new digital environment for the future. Could the college create an environment that was truly integrated and transparent to staff and students using such a system? All business operations could become manageable through the SharePoint technology and offer the college a “one-stop” solution. In addition the SharePoint learning kit for educational users offers a fully functional learning and administrative environment at no extra cost.

The SharePoint Server technology offers a simple, efficient way of integrating a number of functions through web services. Incorporating a learning environment allows both academics and administrators the tools to interact within a secure and truly integrated environment. This proposal is an attempt to explore the SharePoint technology and evaluate its relevance to our college operation and future development.

Introduction

Ubiquitous computing has been tagged “the third wave of computing” and is just now beginning. The first wave saw the introduction of mainframes, each device shared by lots of people. We are currently in the second wave of personal computing, with person and machine interacting with each other across the desktop. The third wave, ubiquitous computing, (or the age of *calm technology)* is conceived to be when technology recedes into the background of our lives.

Mark Weiser is hailed the father of ubiquitous computing; his web page contains links to many papers on the topic. One of his original papers ("Designing Calm Technology"; 1996) expresses elements of the ubiquitous computing philosophy.

Ubiquitous computing is roughly the opposite of virtual reality. Where virtual reality puts people inside a computer-generated world, ubiquitous computing forces the computer to live in the world with people.

Digital technology has radically altered the way in which we live and work, but has not had a substantial impact on education. *Ubiquitous Computing in Education* explores the educational potential of ubiquitous computing initiatives that make digital tools available to students and teachers. Combining theory, research, and practice, this paper paints a broad picture of the field of ubiquitous computing in education, which focuses on the availability of digital tools for teachers and students to use anywhere and anytime to support teaching and learning.

How can we take advantage of the philosophy of computers everywhere? How can we make many computers available throughout the physical environment, while making them effectively invisible to the user? This paper explores the progress made by Redcar & Cleveland College in developing a blended learning approach and offers some recommendations for future development of the concept of a ubiquitous college.

The story so far

Over the last 5 years, the college has embarked on a technological path that has seen the introduction of desktop computing and virtual learning environments. This development path, in a small to medium sized college with stretched funding resources has not been easy.

The balance between innovation and financial viability is never easy when colleges of this size are attempting to meet governmental targets on quality and improvement.
However some progress has been made with an ICT strategy that has seen a slow but improving implementation of ICT within teaching and learning. The demands of an improving educational provision has in some ways diverted effort from exploring innovative ways of incorporating ICT into the curriculum. The introduction of a virtual learning environment on the other hand has been the most significant change in educational delivery at this level.
The engagement of staff and students in digital delivery of resources has made some impact on the way classroom teaching has progressed. Research into staff skills and their grasp of the technology shows a slow but deliberate improvement over the last two years. Courses are beginning to appear on the learning environment and staff are increasingly willing to try new approaches to delivering their content.
On the other hand the college is still very much at the beginning of a technological transformation. Staff struggle with the concept of desktop computing in terms of teaching practice other than a means for creating electronic resources. Administrative systems are diverse and somewhat complex to most staff members. So where are we to go in the future? Is there a path that can be followed that will create this vision of pervasive technology where computing forms the background to everyday operation?
If the college is to take full advantage of their new building and proposed digital environment, then consideration of a new and innovative ICT strategy should be explored. Electronic resources and teaching aids will continue to flourish as more and more innovative methods of delivery begin to unfold. Their adoption and implementation depends solely on the creative nature of curriculum staff and the demands of students for the inclusion of current and new technologies into the world of learning. Providing the college invests in research and development of such approaches, this process of technological growth will continue to improve.

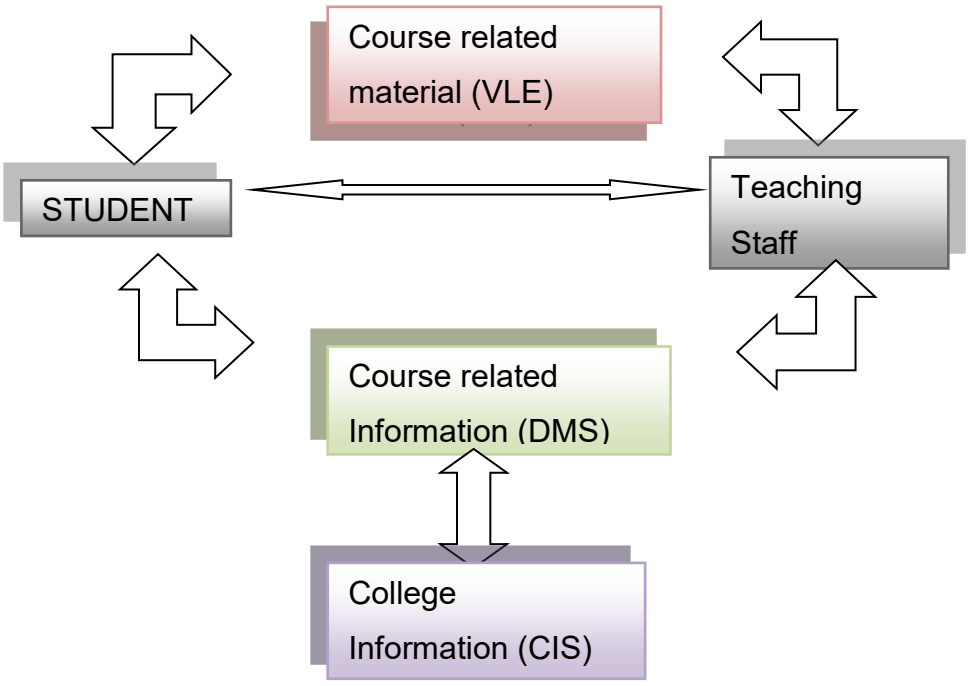
What is more exciting and potentially ground-breaking is how the college manages the process of administering learning as well as delivery. Can we combine the two

functions in such a way that the technology behind these activities becomes pervasive?

The college is currently exploring a range of systems that move its functionality towards a perceived digital environment.

Electronic management information systems, coupled with electronic document management systems are clearly creating a new digital environment for the future. However all these are not insignificant changes to methods of working. College staff are still required to invest significant amounts of time towards maintaining such a process. As the move towards digitisation progresses it might be time to stand back and evaluate whether the direction is effective and appropriate for the coming migration into a new electronic world of learning.

In simplistic terms, the new environment can be represented as:



At present each function represented in the diagram is serviced by separate "unconnected" systems. ("unconnected" can be defined as not fully transferrable across different technology platforms).

Could this be improved? Could the college create an environment that was truly integrated and transparent to staff and students using such a system? The following section describes a possible approach that could be developed to create a single platform environment that incorporates most if not all aspects of teaching, learning and administration.

The sharing of resources and information

The implementation of a technology solution that offers the college an opportunity to incorporate ICT in a truly pervasive way would be the first step in developing a ubiquitous environment. The development of portals, collaborative working, common use of business forms and document and content management as part of a familiar Microsoft environment (with the removal of the need for separately supported applications) would offer the college a simple but effective gateway into future developments.

This functionality is now readily available in the form of a Microsoft application known as Office SharePoint Server 2007 – a member of the new Vista/Office 2007 family. All business operations become manageable through the SharePoint technology and offer the college a "one-stop" solution. In addition the SharePoint learning kit for educational users offers a fully functional learning and administrative environment at no extra cost.
This approach incorporates a number of integrated features that are currently not available on-line or form part of multiple systems within the college:

- **Microsoft Office PowerPoint 2007** Create a library of PowerPoint slides that can be shared with other users on an Office SharePoint Server 2007 site.
- **Microsoft Office Access 2007** Take a SharePoint list offline and use the reporting features in Office Access 2007 to view the data and create reports while travelling. Forms and reports that use the SharePoint list are fully interactive — and Office Access 2007 can later synchronize the local list with the online list when you bring your laptop back online.
- **Microsoft Office Outlook 2007** Take document libraries offline. SharePoint folders are displayed just as other Outlook folders are.
- **Microsoft Office InfoPath 2007** Design browser-compatible form templates, publish them to an Office SharePoint Server 2007 site, and enable them for use in a Web browser.
- **Microsoft Office Excel 2007** Save worksheets on a SharePoint site so that users can access them by using a browser. You can use these worksheets to maintain and efficiently share one central, up-to-date version, while helping to protect any proprietary information, such as financial models, that is embedded in the worksheet.
- **Microsoft Office SharePoint Designer 2007** Create and customize Office SharePoint Server 2007 sites and workflows. Create your own master pages and content pages, so that your site has a consistent look and feel, or customize sites by using the latest ASP.NET technology, established Web standards such as Extensible Hypertext Markup Language (XHTML) code, and cascading style sheets.

The SharePoint Server technology offers a simple, efficient way of integrating a number of functions through web services. In addition this functionality is available anywhere and at anytime. Incorporating a learning environment allows both academics and administrators the tools to interact within a secure and truly integrated environment.

Project proposal and recommendations

This proposal is an attempt to explore the SharePoint technology and evaluate its relevance to our college operation and future development. The project plan would be:

- Purchase server hardware **(£2-3,000** possibly available through Aim Higher funds**)**.
- Allocate technical support in the form of an appropriate IT technician who can become familiar with and assist the SharePoint set-up
- Implement Office SharePoint Server 2007 (free trial version) within a selected sector of the college (e.g. Computing and IT)
- Determine its use and appropriateness within our new digital environment.
- . Run project for a trial period starting April 2008. The set-up of servers and system testing should be carried out prior to this.
- Extend SharePoint technology to other areas in the new building from September 2008.

Future developments with the technology would then see the evaluation of implementing of an integrated timetable/room schedule (Outlook 2007 based) linked to a resource repository within SharePoint, possibly linked to our badge system. This would offer a truly pervasive solution whereby teaching staff can access resources in appropriate rooms at appropriate times simply by entering the teaching area.

George Corfield

February 2008

Microsoft Demonstrations

SharePoint Server overview (video)

http://office.microsoft.com/en-us/sharepointserver/HA101672721033.aspx

Collaboration using SharePoint Server

Simple use of Portals

http://office.microsoft.com/en-us/sharepointserver/HA102501011033.aspx

Document and content management

http://office.microsoft.com/en-us/sharepointserver/HA102500981033.aspx

All SharePoint Server 2007demos

http://office.microsoft.com/en-us/sharepointserver/CH102066971033.aspx?

SharePoint eLearning demonstrations

SharePoint Server screen casts

http://www.sharepoint-screencasts.com/

18 Development of Social networking Systems 2007/08

Date	Actions	Aims	Outcomes	Evidence for Success	Comments/Progress
Aug/Sept 2007	Discuss proposals for specialist projects Discuss funding requirements.	Propose action plan for social networking projects with timescales Draft project budget proposed	Agree outline plan for projects Agree funding for resources needed to run projects	List of potential projects drafted Agree Blackboard add-ins £3500 p.a Video editing suite £5000 (medium priority) Consumable £1300	Projects drafted • HSC wiki collaboration • FD Chem Tech podcasts and wikis • Travel & Tourism wiki • BTEC FC/FD Media Budget is estimated requirements to develop blended projects

Date	Actions	Aims	Outcomes	Evidence for Success	Comments/Progress
Oct – June 2008	Develop projects in each curriculum area/monitor	Project schedule for a range of curriculum projects implemented	Implement the following projects: Social software projects (Web 2.0) with selected groups (T&T, FD Chem Tech, BTEC media, H&SC)	Oct – June 08 – 100 students involved in projects	See following sheet for project detail

19 Development of Social networking Systems 2007/08 (Detail)

The following projects all focus on the use of social networking as a teaching and learning tool. The development of wikis, podcasts and videocasts are techniques that Web 2.0 technology embraces. It is hoped that these applications can be used within the college VLE environment using a Blackboard building block (CampusLX) developed by a company called Learning Objects. The latter software is extensively used amongst Blackboard users to enhance the social networking environment.

The cost of such and add-in is around **£3500 p.a.** and this approach is preferred to the 2006/07 social networking trials that incorporated third party hosing of wikis which were limited in their use and availability to students.

Although it would be useful to research a wide use of audio and videocast material it has been decided to restrict this use to one course in order to determine the value of these forms of resources for future development. In an ideal world it would also be advantageous to have a dedicated audio/video editing suite available for staff use. However it was decided to operate the latter using web cams and desktop software as an interim measure until staff became familiar with the techniques.

Each social networking project is listed below with aims, objectives and timetable of implementation.

FD Chemical Technology

This proposal is designed to extend the use of "social networking" tools to include wikis, podcasting and videocasting within a collaborative teaching style. This approach will endeavour to enhance the learning experience of students who traditionally attend college on a part-time basis. Wikis, podcasts and videocasts will be used to keep tutors, students and employers in touch during the delivery of a course. This simple approach will hopefully help create a greater sense of cohesion within the programme.

Aims and Objectives

The aim of the project is:

- *To determine the value of using social networking in a teaching and learning environment as a tool to improve student achievement.*

The objectives are:

- *To create a collaborative teaching environment between tutors, students and employers within Foundation Degree units.*
- *To create a wiki for students, employers and staff to discuss teaching and learning issues, raised throughout the course, in order to improve the learning experience.*
- *To explore the use of podcasts and videocasts as a simple communicative tool to provide students with course information when not attending college.*
- *To determine the most appropriate use of collaborative techniques in order to develop a strategy for future teaching and learning styles throughout the college.*

Timetable

Key Activity	**Date**
Start date	October 2007
Create wikis and initial podcasts	November 2007
Staff development and software training	Oct – Nov 2007
Launch course wiki	November 2007
Develop course materials etc	Nov 2007 – June 2008
Student feedback	May 2008 – June 2008
Collation of results and analysis	June – July 2008
Report, web pages, paper to HE Academy conference? etc	July 2008
End date	End July 2008

BTEC National Diploma Travel & Tourism

This project is designed to introduce the use of “social networking” tools to include wikis within a collaborative teaching style. This approach will enhance the learning experience of students. The implementation of a wiki culture will be used as a vehicle for the development of coursework and assignments. Students will collaborate using an interactive web site to brainstorm ideas and support their learning.

Aims and Objectives

The aim of the project is:

To determine the value of using social networking in a teaching and learning environment as a tool to improve student achievement.

The objectives are:

- *To create a collaborative teaching environment between tutors and students on a BTEC national Diploma course*
- *To create a wiki for students and staff to discuss teaching and learning issues, raised throughout the course, in order to improve the learning experience.*
- *To determine the most appropriate use of collaborative techniques in order to develop a strategy for future teaching and learning styles throughout the college.*

Timetable

Key Activity	**Date**
Start date	January 2008
Create wikis and Blackboard resources	January 2008
Staff development and software training	January 2008
Launch course wiki	End January 2008
Develop course materials ec	Jan 2008 – March 2008
Student feedback	April 2008 – June 2008
Collation of results and analysis	June 2008
End date	End June 2008

Health and Social Care – FD Early Years

This project is designed to introduce the use of "social networking" tools to include wikis within a collaborative teaching style. This approach will enhance the learning experience of students. The implementation of a wiki culture will be used as a vehicle for the development of coursework and assignments. Students will collaborate using an interactive web site to brainstorm ideas and support their learning.

Aims and Objectives

The aim of the project is:

To determine the value of using social networking in a teaching and learning environment as a tool to improve student achievement.

The objectives are:

- *To create a collaborative teaching environment between tutors and students on a BTEC national Diploma course*
- *To create a wiki for students and staff to discuss teaching and learning issues, raised throughout the course, in order to improve the learning experience.*
- *To determine the most appropriate use of collaborative techniques in order to develop a strategy for future teaching and learning styles throughout the college.*

Timetable

Key Activity	**Date**
Start date	October 2007
Create wikis and initial podcasts	November 2007
Staff development and software training	Oct – Nov 2007
Launch course wiki	November 2007
Develop course materials etc	Nov 2007 – June 2008
Student feedback	May 2008 – June 2008
Collation of results and analysis	June – July 2008
End date	End July 2008

BTEC FC/FD media

This project is designed to introduce the use of “social networking” tools to include wikis within a collaborative teaching style. This approach will enhance the learning experience of students. The implementation of a wiki culture will be used as a vehicle for the development of coursework and assignments. Students will collaborate using an interactive web site to brainstorm ideas and support their learning.

Aims and Objectives

The aim of the project is:

To determine the value of using social networking in a teaching and learning environment as a tool to improve student achievement.

The objectives are:

- *To create a collaborative teaching environment between tutors and students on a BTEC national Diploma course*
- *To create a wiki for students and staff to discuss teaching and learning issues, raised throughout the course, in order to improve the learning experience.*
- *To determine the most appropriate use of collaborative techniques in order to develop a strategy for future teaching and learning styles throughout the college.*

Timetable

Key Activity	**Date**
Start date	***October 2007***
Create wikis and initial podcasts	November 2007
Staff development and software training	Oct – Nov 2007
Launch course wiki	November 2007
Develop course materials etc	Nov 2007 – June 2008
Student feedback	May 2008 – June 2008
Collation of results and analysis	June – July 2008
End date	***End July 2008***

20 Across borders with technology – Travel Tourism and Hospitality in Redcar and Dusseldorf

A group of 'Travel and Tourism' students from Redcar, UK and a class of hotel students from Düsseldorf, Germany, collaborate in a vocational project. The project concentrates on job-related contact and discussions using new media and Web 2.0 tools.

- **Subjects:** Foreign Languages
- **Languages:** English
- **Pupil's age:** 16 - 20
- **Tools to be used:** Audio conference, Chat, e-mail, Forum, MP3, Other software (Powerpoint, video, pictures and drawings), Video conference, Virtual learning environment (communities, virtual classes, ...), Web publishing
- **Aims:** - Getting to know each other - Providing an insight into the 'daily routine'.
- **Work process:** - Introductory email contacts/chat - Job/course related tasks to achieve this.
- **Expected results:** - PowerPoint presentations - audio files (e.g. in form of podcasts) – video.
-

The Dusseldorf school

The Albrecht-Dürer-Schule is the largest vocational college in the area of Dusseldorf. All in all, they have more than 4400 students this year (day-release, block-release, full-time). Students are apprentices/trainees in many different areas, therefore the range of possible project focuses is quite wide. They work in the following fields: the hotel and catering trade, media design and printing, various crafts (opticians, dental technicians, draughtsmen, stucco plasterers, painters and decorators, interior decorators). For further information see http://www.ads-bk.de (in German).


eTwinning Label
Steffi Feldhaus, Albrecht-Dürer-Schule, Berufskolleg der Stadt Düsseldorf, Germany
Glenn Preedy, Redcar Cleveland College, United Kingdom
George Corfield, Redcar Cleveland College, United Kingdom
were awarded the Label for their project:
Across borders with technology – Travel Tourism and Hospitality in Redcar and Dusseldorf
14.10.2008
Maike Ziemer
National Support Service
Germany
Marc Durando
Central Support Service
Susan Linklater
National Support Service
United Kingdom

21 Electronic Student Induction and Staff Reviews

George Corfield

February 2008

Introduction

The process of student induction can vary significantly across curriculum areas. In recent years we have moved towards a more structured college approach with the introduction of skills testing and NOCN units.

With the migration to a new building and the development of a college wide digital philosophy, it might be time to revise the induction process and implement an electronic approach.

The creation of Blackboard courses and subsequent enrolment of students has been problematic with some courses never gaining access to electronic resources. Moving towards electronic induction via Blackboard will create the need for students to be enrolled on the system as they appear and provide an ideal opportunity for the introduction of electronic resources for all.

Similarly the process of Staff Reviews is predominantly one of recording activities and progress of these activities to identify personal development needs. This procedure can again be enhanced by the use of electronic forms and interactive completion. Personal interviews etc can be handled following this electronic completion activity.

This project proposal is submitted in an attempt to encourage the use of the virtual learning environment and create a college wide approach to VLE engagement. Staff reviews are included in this approach in order to help streamline the activity.

The Student Induction process

The development of an electronic induction process is seen as an ideal opportunity to introduce students to the college and its facilities as well as creating a learning environment community at the start of an academic year.

All students can be assessed for the NOCN induction units via a Blackboard building block for ePortfolio production. The creation of electronic induction course material is fairly simple, and can consist of generic college content coupled with specific curriculum content. The advantage to this approach is that all students will be enrolled on Blackboard at the beginning of the year. This will consequently ensure that course teams create and maintain a VLE presence for their curriculum area.

Other aspects of induction can be incorporated in the digitisation of induction. For example – information about course structure, resources etc can be provided by means of text files or videocasts and podcasts. Links to students services can be incorporated simply and easily and the whole induction process can be transformed from course team delivery to a truly student centred one.
The development of appropriate VLE material is fairly straightforward and can be as simple or complex as each area feels appropriate. Induction can be scheduled at the beginning of the year or incorporated over a period of time depending on course team preferences.

Staff Reviews

The process of staff reviews and personal development can be enhanced significantly by engaging staff through Blackboard ePortfolio building blocks. The software CampusLX has an ePortfolio element (ExportLX) that allows individuals to create their own portfolio of study plans, personal details, action plans etc . Incorporation of such a tool with the staff review process would allow staff to create their own portfolio of staff development needs, action plans to meet these needs and progress reports of activities. Linking the ePortfolio to the review process would offer a much better system of continuous personal development and simplify the process of review by team managers.

Project Proposal

This proposal is an attempt to digitise both the student the induction process and staff review system as well as address the problem of Blackboard engagement throughout the college. The project key stages are seen as:

Student Induction Process

- Create project team to analyse needs and requirements of an electronic approach (team could be members of DLST group)
- Develop an appropriate electronic version of NOCN induction module or appropriate college generic induction material. Test appropriateness etc.
- Engage staff in developing induction material for their courses.
- Run short pilot with group of students (April/May 2008), make amendments and implement for September 2008.

Staff Review process

- Purchase and implement ePortfolio building block within Blackboard.
- Develop strategy and format for staff use as part of the review process (Staff guidelines for completion).
- Run short pilot with small group of staff regarding completion and review. (April/May 2008).
- Make appropriate amendments and implement system for September 2008/09.
- Run staff development sessions on new procedures.

The implementation of such an approach requires the purchase of the Learning Objects building block CampusLX. This is currently priced at around £3000 p.a. In addition some development time is required by the ILT Project Manager and appropriate staff and student testers.

George Corfield

February 2008

22 ePortfolios and NVQs

Background

The use of ePortfolios within the NVQ qualification areas of the FE sector has been investigated by many colleges over the last twelve months. Although our VLE (Blackboard) has ePortfolio plug-ins available, current Examination Boards are accrediting specific software houses for delivery of electronic evidence gathering. One such supplier is **Learning Assistant**.

This package is an innovative cost effective solution for on-line training support and allows training organisations to improve the delivery and assessment of learning programmes. It provides facilities for the creation of electronic portfolios and assessment tools which can accelerate the learning process as well as improve the quality of documentation handling.

Following a demonstration of Learning Assistant, and an investigation of costs etc, this paper outlines a project proposal to trial the software in a limited form.

Project proposal

Learning Assistant claims that its use can provide up to 30% per head savings. This return is in the form of reduced material costs, shorter completion time and increased candidate capacity. It is also claimed that drop-out rates can be reduced due to reduced paperwork loads offered by the system making the learning process simpler and much more reactive to situations.

Despite all these admirable claims, it would be wise to trial such an approach in areas of the college that have traditional NVQ candidates. It is suggested that a trial could be set up for Business Administration and Construction (Joinery). These areas have in the region of 120 – 150 candidates.

Learning Assistant offers three options for trials as follows:

1. **Option 1:** provides a small scale trial with up to **20** candidates and **2 qualifications** and 1 day training for staff. **Cost£3,600**
2. **Option 2:** Provides a medium sized trial with up to **50 candidates** and **5 qualifications** as well as 1 day training. **Cost £4,950**
3. **Option 3:** Large scale trial of up to **200 candidates** and **5 qualifications** with 2 days training. **Cost £9.650.**

It is suggested we run a medium sized trial (£4,950) in a couple of areas (Business Admin and Joinery) over a year starting September 2008.
Monitoring progress will provide evidence for extending this approach within all NVQ areas. The latter has the following roll-out costs:

- Additional single licence per qualification £48.00
- 25 candidate £45.60
- 50 candidates £43.20
- 100 candidates £40.80
- 250 candidates £38.40
- 500 candidates £33.60

Licences can be paid “up-front” or on a monthly “pay as you go” basis depending on business needs.

ePortfolios across the whole college

Apart from the area of vocational qualifications the college could consider, as part of its eLearning Strategy, moving all student outcomes towards electronic portfolios. (We are currently embarking on a small trial within Learning Support and entry level student assessment).
The transition to ePortfolios in the case of other qualifications can be handled through Blackboard building blocks (ExportLX) an element of a package called CampusLX which currently costs £3000 p.a. from Learning Objects. This system is widely used at the University of Teesside and will form part of their eLearning structure from September 2008.

G.T. Corfield
February 2008

Virtual Portfolio Project

The Entry Level vocational courses across College currently produce paper-based evidence files for presentation to External Verifiers. Digital technology provides us with the opportunity to move to electronic portfolios, using varying forms of digital media stored on a College webspace. The project would ultimately aim to create an electronic environment for the development and storage of assessment evidence and learning resources – an environment that individual students could access through their own i-pods.

To facilitate the introduction of e-portfolios the College would need to purchase the following hardware:

10 digital camcorders	**(one per vocational area, with a few spares)**	**£500 x 10 =**	**£5000**
10 digital cameras	**(optional)**	**£200 x 10 =**	**£2000**
60 pendrives	**(one for each EL student)**	**£30 x 60 =**	**£1800**
60 storage cards	**(one for each El student)**	**£10 x 60 =**	**£600**
10 card readers		**£100 x 10 =**	**£1000**
Blackboard Building Block (Campus LX)	**per annum**		**£3500**

(This allows students to build individual storage areas through Blackboard)

Dedicated Server (optional) **£1000**

The EL students would be provided with their own i-pods for download of relevant material – specifically to track their own evidence.

60 i-pods **£130 x 60** **£7800**

There would also be staffing and training requirements:

1. Staff to manage the'hubs' through which students upload their evidence.
Ballpark figure: 1 hr x 30 wks? £45 x 30 x 10 = **£13500**

2. IT technician support **£500**

3. Training for staff involved in EL vocational courses. **£1000**

With the added familiarity students gain through building their e-portfolios, they will hopefully be more open to e-learning; the Virtual Portfolio Project could encourage a wider use of e-learning

material. If required staff on the EL courses could, through the purchase of additional hardware, be encouraged to develop this aspect of the learning experience.

20 webcams at key locations **£30 x 60 = £1800**

If required, ten additional computers could be purchased specifically for the maintenance of the students' i-tunes store. These would be located in each participating vocational area, ideally in the room most commonly used by the EL students.

10 multimedia computers **£700 x 10 £7000**

Summary:

Hardware costs are	**£31,500.**
Staffing costs are	**£15,000.**
Total cost of project:	**£46,500.**

23 College Digital TV and Radio

Background

The development of Internet facilities and a rapidly changing environment towards a more interactive web has seen the growth in technologies such as videocasts and pod casts (audio).

The use of collaborative software tools within a learning environment is becoming a standard teaching tool for many teaching and learning establishments. Software for the creation of video and audio material is now readily available at a price that most colleges and Universities can afford. The experience of creating resources that are easily accessed and available outside normal teaching slots is attractive. Both video and audio material offer staff and students the opportunity to create an enhanced learning environment in which all can contribute. It also offers the college a platform for communicating a whole range of information from marketing to curriculum matters.

This project is therefore an attempt to explore the potential of digital media in a conventional college environment. It also offers the opportunity of researching a new and exciting tool ready for the opening of a new college in Redcar.

Project proposal

The project is designed to create:

- A suitable studio and editing suite for the production of digital TV and radio material.
- A staff development programme to run pilot projects in a number of curriculum and student services areas.
- A link to library facilities to manage and distribute the media.

The outline proposal is to purchase suitable TV and Radio equipment in order to develop a range of student based programmes for publication over the Internet (a good example of such an approach is Felixstowe TV http://felixstowetv.co.uk/).

The creation of a Digital TV and Radio culture will then be piloted in a select number of curriculum areas as part of the teaching and learning environment. In addition the facilities will be used as a communication device for both Student Services and marketing in order to test a new and exciting enhancement to college facilities. Students will contribute to this as appropriate.

George Corfield
December 2008

Project Costs

A rough estimate of costs is given below:

Digital TV and Radio equipment	Video Camera	£2000
	Editing desk	£1000
	Software	£1000
	Consumable	£500
	TOTAL	**£4500**
Studio	Refurbishment	£2000
Staff costs	Project manager	£10000
	Other	£5000
	TOTAL COST	**£21,500**

24 The Use of Video

As described in previous projects, the use of video material was seen as an extremely valuable resource for both teaching and information distribution (web site, intranet etc).

Video usage took the following forms:

- Short videocasts for information or skill development.
- Short videos promoting various sections.

Some examples with links are shown below (click on link or search YouTube for georgec100)

Promotional Videos

Learning support

College promo

Video as part of projects

eTwinning

Videos to support Virtual Worlds

College SL Island

The Journey

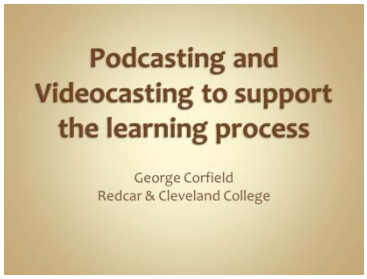
Videos as part of section advertising etc.

Redcar

Beauty - Cupping

Plumbing

Sport



"Podcasts and video to support the learning process"

Podcasting and Videocasting to support the learning process

George Corfield
Redcar & Cleveland College

The College

Background

- This presentation forms part of an on-going study into the integration of technology into teaching and learning
- The college has been exploring the value of Web 2.0 Teaching for the last 12 - 18 months.
- A number of techniques have been tried using the "social networking" banner

The road to Web 2.0

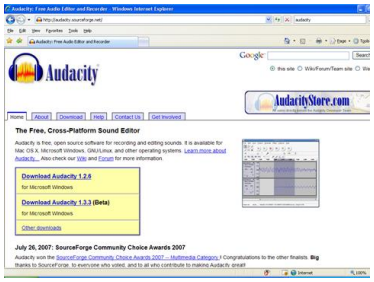
- Initial trials with wikis

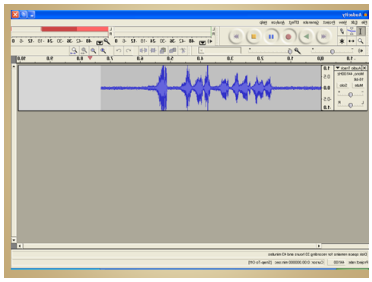
A Word about sound

- Introduced the use of sound in electronic assessment

Recording Sound

- Audio files can be created in a number of ways
- A simple but effective way is using a package called Audacity:
- This is a freely downloadable package that is simple to use:
- http://audacity.sourceforge.net/





Screen shot commentaries

- The next stage was to encourage staff to create commentaries linked to screen shots.
- Used a simple package called CamStudio
- Available from http://www.camstudio.org

CamStudio

The use of Video

- Central to all resource use is the college VLE
- Migration towards electronic resources has been a long road … and it is still winding
- Staff in some areas have found the transition difficult.
- Video has helped – but has its problems
  - File size
  - Relevant content
  - Need for streaming

The use of Video - Sport

The use of Video – Service Industries

Use of Video – Hair & Beauty

The use of Video – Built Environment

Other Examples

- Short tutorials posted on VLE
- Recordings of class discussions
- Speaking and listening skills for students with learning difficulties
- Audio typing and shorthand exercises

The rationale for pod and videocasting……

- FE by its very nature, plays well to students with aptitude for auditory, visual, and tactile learning.
- Many students favour cooperative problem solving and seem to have less affinity for the traditional lecture format.
- They tend to multitask and show high competence in all manner of digital media.
- We therefore need educational tools that improve student interaction and ownership of educational content.

The rationale……

- Pod and videocasting represents one exciting piece of curriculum.
- Its multimedia nature has the potential to positively impact student learning and retention.
- Pod and videocasts that focus on very specific topics allow students to search and select the content they want .
- Pod and videocasting has the potential to transform the classroom into a truly student-centred model environment

A Pod and Videocasting study

- A selected group of Foundation Degree students.
- Studying Chemical Manufacturing
  - Practical based
  - High level of problem solving skills
  - Employer engagement
- Students resources included
  - VLE (Blackboard) conventional text and multimedia resources
  - Wiki for collaboration
  - iPods to download audio and video material for use at place of work

Content

- Tutor and students created a wiki for collaborative work on assignments.
- This gave employers the opportunity to interact with the course content.

Content

- Course tutor created a weekly **"hello everyone"** podcast.
- Demonstrations, visits and discussions were recorded and uploaded to Blackboard

Factors for success

- Implement with enthusiastic tutors.
- Ensure good planning of content for pod and videocasts
  - Although impromptu audio sessions were the most popular.
- Create a library of audio and video files (by course, on VLE).
- Create a collaborative environment

The student experience

- Found it "strange" at first – not sure about value of pod and videocasts
- Rapidly found the content valuable, especially when they could access at place of work. (iPods sold it!!!)
- If tutor missed a podcast on the VLE – students complained!!
- Videos of demos and visits used as aide memoir for assignment work.

The future……

- Stamford in iTunes

http://itunes.stanford.edu/

- Learnitology Series

http://www.nd.edu/~learning/podcast/LTLpodcast07.m4a

- **IT Communications**

http://itc.conversationsnetwork.org/shows/detail474.html

- **Ubiquitous access**
  - **Freely availble information in transparent forms.**

26 College Times Student Newspaper

27 BLENDER Staff ILT Newsletter (sample of monthly issue)

REDCAR & CLEVELAND COLLEGE

Blender (Blended and elearning @ Redcar)

Volume 4. Issue 1

March 2009

From Digital Immigrants and Digital Natives to Digital Wisdom

Inside this issue:

- Digital Wisdom?
- OneNote and SharePoint
- FENC resources
- ePortfolios

The article is reprinted here with permission of the publisher, The Fischler School of Education and Human Services at Nova Southeastern University.

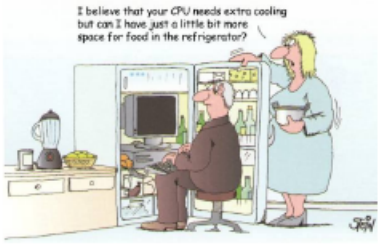
In 2001, Prensky published "Digital Natives, Digital Immigrants," a two-part article that explained these terms as a way of understanding the deep differences between the young people of today and many of their elders (Prensky 2001a, 2001b).

Although many have found the terms useful, as we move further into the 21st century when all will have grown up in the era of digital technology, the distinction between digital natives and digital immigrants will become less relevant. Clearly, as we work to create and improve the future, we need to imagine a new set of distinctions. Prensky suggests we think in terms of digital wisdom.

The mouse every "girl" should have

Digital technology, Prensky believes, can be used to make us not just smarter but truly wiser. Digital wisdom is a twofold concept, referring both to wisdom arising *from* the use of digital technology to access cognitive power beyond our innate capacity and to wisdom *in* the prudent use of technology to enhance our capabilities. Because of technology, wisdom seekers in the future will benefit from unprecedented, instant access to ongoing worldwide discussions, all of recorded history, everything ever written, massive libraries of case studies and collected data, and highly realistic simulated experiences equivalent to years or even centuries of actual experience. How and how much they make use of these resources, how they filter through them to find what they need, and how technology aids them will certainly play an important role in determining the wisdom of their decisions and judgments. Technology alone will not replace intuition, good judgment, problem-solving abilities, and a clear moral compass. But in an unimaginably complex future, the digitally unenhanced person, however wise, will not be able to access the tools of wisdom that will be available to even the least wise digitally enhanced human.

Moreover, given that the brain is now generally understood to be highly plastic, continually adapting to the input it receives, it is possible that the brains of those who interact with technology frequently will be restructured by that interaction. The brains of wisdom seekers of the future will be fundamentally different, in organization and in structure, than our brains are today. Future wisdom seekers will be able to achieve today's level of wisdom without the cognitive enhancements offered by increasingly sophisticated digital technology, but that wisdom will not be sufficient, either in quality or in nature, to navigate a complex, technologically advanced world.



IT's time to collaborate

Microsoft Office One-

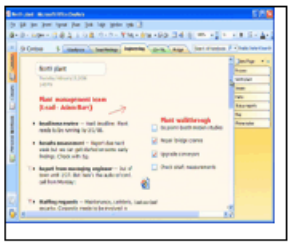
What is OneNote?

Enhanced notebook management lets you organise different kinds of information—text, videos, audio, images—in one notebook, or separately by subject or location.

Instant Search is a better way to find what you're looking for, whether it's in text, image or even audio or video format.

New note-taking tools let you save Web content into OneNote, link to Web pages or other notes and even use drawing tools to capture an idea.

Automatic save and back up protects your notes



Click here for a demonstration

The College is running a number of trials using this package. Each Faculty has a dedicated OneNote folder available to staff for the creation of pages holding, pictures, text, files—almost anything you find useful.

Contact your HoF for access to these folders

Interested in how you can use this technology in your teaching and learning practice?

Want to know more about OneNote?

Contact George Corfield ext 7155 or e-mail:

gcorfield@cleveland.ac.uk

Microsoft Office SharePoint Server 2007

Microsoft Office SharePoint Server 2007 is a new server program that is part of the 2007 Microsoft Office system. Your organization can use Office SharePoint Server 2007 to facilitate collaboration, provide content management features, implement business processes, and supply access to information that is essential to organizational goals and processes.

You can quickly create SharePoint sites that support specific content publishing, content management, records management, or business intelligence needs. You can also conduct effective searches for people, documents, and data, participate in forms-driven business processes, and access and analyze large amounts of business data.

Microsoft Office SharePoint Server 2007 Capabilities

Microsoft Office SharePoint Server 2007 provides a single, integrated location where employees can efficiently collaborate with team members, find organizational resources, search for experts and corporate information, manage content and workflow, and leverage business insight to make better-informed decisions.

Collaboration Allow teams to work together effectively, collaborate on and publish documents, maintain task lists, implement workflows, and share information through the use of wikis and blogs.

Portals Create a personal MySite portal to share information with others and personalize the user experience and content of an enterprise Web site based on the user's profile.

Enterprise Search Quickly and easily find people, expertise, and content in business applications

Enterprise Content Management Create and manage documents, records, and Web content.

Business Process and Forms Create workflows and electronic forms to automate and streamline your business processes.

Business Intelligence Allow information workers to easily access critical business information, analyze and view data, and publish reports to make more informed decisions.

Integration with 2007 Microsoft Office System

Office SharePoint Server 2007 is designed to work effectively with other programs, servers, and technologies in the 2007 Office release. For example, with Microsoft Office PowerPoint 2007, you can create a slide library on an Office SharePoint Server 2007 site that allows other users to pick specific slides for their own presentation and receive notifications and updated versions when the slides have been modified. Click here for more examples of how specific 2007 Office release programs work with Office SharePoint Server 2007.

The **University of Teesside** is currently piloting this within the HEBP context. Partner colleges are able to access a single portal at the University to explore common documentation and information. In addition each partner has its own area and links to courseware viatheir Blackboard sites. Some examples of screens available are shown below:

The welcome page

College Page

FENC resources now available to all areas

Redcar and Cleveland College is a current subscriber to FENC. As part of this licence, all members of staff are entitled to access the college's online FENC account which contains learning resources, including NLN material, lesson plans and Content Management System.

All FENC learning content is copyright cleared throughout the duration of your licence, which means you can adapt it to meet your individual needs, and the web application enables you to organise and use the content in a variety of ways, be it online, locally from your PC or via your VLE.

When you 'left click' on the icon next to each resource, you are presented with various options:

Open – to launch the resource online.

- **Download** – content can be downloaded for local use or in a format which enables you to edit and adapt the resource. You can copy and paste individual assets, such as pictures and videos to use them in resources you may be creating at the college yourself.

- **Copy** – you can copy and paste resources to other folders within the Main Menu or to your own private online area called 'My Documents'.

- **Add to Favourites** – you can add your favourite FENC resources and lesson plans to My Favourites, your personal storage area, enabling them to be found quickly and easily. You can also create sub-folders here to help you organise and manage these selected resources.

- **User Reviews** – this enables you to review a resource to provide valuable feedback to colleagues as to its usefulness and relevance. The 'Rating' column can also be ordered showing resources with the highest ratings either ascending or descending

- **Properties** – users with Administrator level access are able to add metadata to each resource to provide additional keywords to broaden a resources search criteria.

The 'Folder Options' box on the right of the screen contains a drop down menu to enable you to create and add new:

Folders – these can be created and added to the Main Menu and also within the existing FENC folders of learning resources. You can use these areas to upload and organise your own content and share these with your colleagues. Folders automatically order themselves alphabetically. If you wish to control the order they appear in, then we suggest you number the folders.

Files - you can upload and store your own content, including videos, which you can share with colleagues at your college.

Link – you can add useful web addresses and other links to your account.

Lesson Plans – you can create interactive lesson plans that allow you to add dynamic links to resources, web sites etc and allow you to package entire lessons.

Any folder, resource, or lesson plan that you create will have a gold star on the icon. This allows you to distinguish between folders and content your college has added to the account from those supplied to you by FENC.

You can also create and manage new folders, files, links and lesson plans within your own personal online workspace called **My Documents**. Content added to this private area can only be viewed and accessed by you, and no one else. You can copy and paste resources from the Main Menu to My Documents and you can also copy content from My Documents and add it to the Main Menu should you wish to share it with colleague.

Your account also contains a section called **My Account**, where you can update your personal details and change your password.

For all the latest news, updates and developments from FENC please visit the FENC website

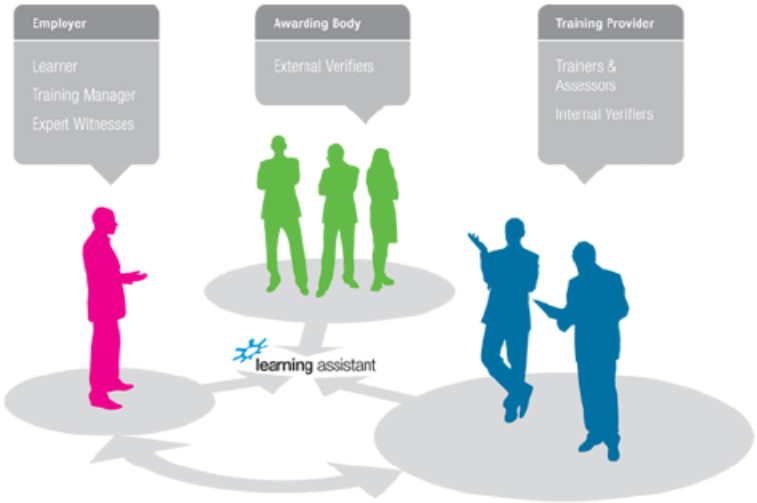
www.fenc.org.uk

ePortfolios and electronic assessment

The College is currently running a series of trials concerning the use of electronic assessment. Health and Social Care are using a system designed by a company called "Learning Assistant" and accredited by the Exam Boards, for the capture of evidence and the monitoring of progress on their NVQ programmes.

Learning Assistant is a user-friendly e-portfolio and e-assessment solution for training centres delivering NVQs, SVQs, VRQs and other vocational qualifications.

The e-portfolio software is currently used by over 150 colleges, training companies, councils and other organisations involved in the delivery of vocational qualifications. Learning Assistant provides an online environment where portfolio building and assessment is made easy, and every aspect of the delivery process is tracked.



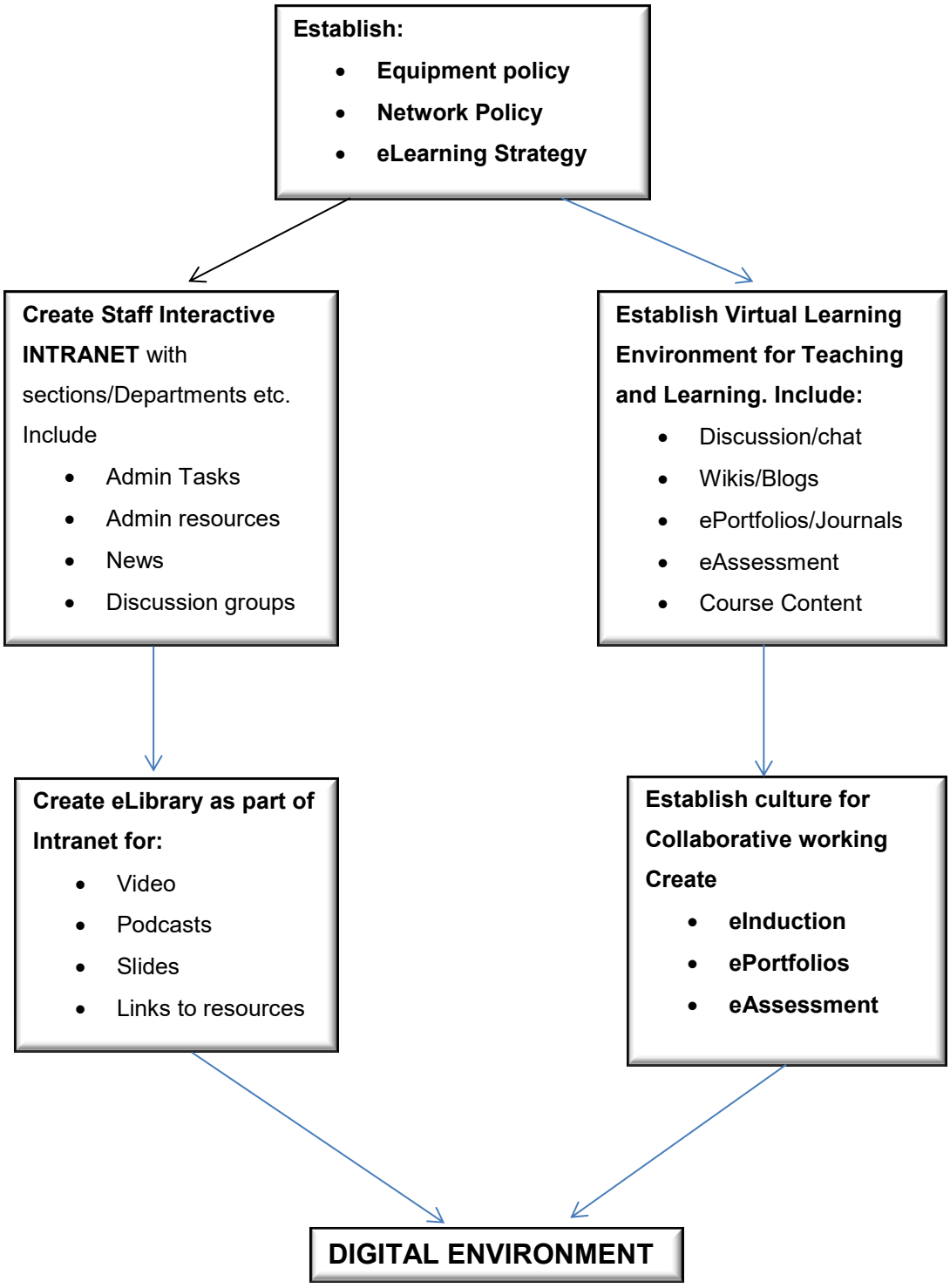
The Learning Assistant e-portfolio system will change the way your organisation delivers its qualifications. This tends to dramatically speed up the assessment and verification process, whilst cutting down on excess paper, and wasted journeys.

Using the internet, Candidates can build their portfolios online, and submit evidence for assessment. Everything can be cross-referenced to the specific criteria of the qualification. Assessors can review the submissions, and feedback can easily be recorded. Verification of Candidates' work has never been easier. Access to the portfolio can also be given to the Candidate's employer, an Expert Witness, and External Verifiers. Have a look at the movie below for an overview of the whole process.

What is Learning Assistant? (1 MB Movie)
An introduction to Learning Assistant

LA customers say that Learning Assistant is the easiest to use e-portfolio on the market. They love the fact that it engages the Candidate and avoids the mountain of paperwork usually associated with NVQs and SVQs. Learning Assistant's success is due to the nature in which it was developed - around the relationship between Candidate and Assessor.

28 Teaching and Learning Technology Road Map



Supporting Material 4

- **USING AN INTRANET FOR CULTURAL CHANGE**
- **E-Learning Strategy at Redcar & Cleveland College**
- **Blended and eLearning project progress Report**
- **Blended Learning and the Integration of ICT in Teaching and Learning (Positional Paper)**

1 USING AN INTRANET FOR CULTURAL CHANGE.

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ILT Project manager

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Abstract

Intranets and the Internet use the same technologies of HTTP, TCP/IP and HTML. New technologies such as Java and XML are being developed to make web pages more functional and allow them to display information more effectively. First-generation intranets use static web pages and provide no functionality to the user. Second-generation intranets also use static web pages but provide some simple functionality, such as the ability to download documents. Third-generation intranets rely on dynamic web pages where the content of pages is pulled from a database and displayed to users within a template. Users can also send information to the database. Fourth-generation intranets recognise who is accessing a page and modify the content appropriately as well as providing full third-generation functionality.

Information and knowledge Intranet technology makes the delivery of organisational information to the workplace much easier. However, it is becoming increasingly apparent that modern organisations live and die according to how well they utilise what they know about what they do and the marketplace. Businesses are increasingly expected to manage their knowledge effectively, but in many organisations this is proving to be very difficult. Knowledge management' has therefore appeared as a discipline, albeit one that many people find hard to understand. This difficulty may have something to do with the function implied by the word 'management', which suggests an administrative, rather than a creative, function. This is perhaps why linking 'intranet' with 'knowledge management' leads people to think about systems that can catalogue every existing item of paper held within a business, usually described as document management systems.
The college being studied has a second generation Intranet. It operates basically as a repository for static information relating to the college performance with references to applications that staff are required to use. There is no ability to interact with the data and any changes are carried out by a variety of administration staff. A survey of staff indicated that this approach is not only poorly populated, it does not appear to provide staff with the sort of information they would like to access. The management of knowledge in the college is consequently not providing staff with the sort of functionality they require.

This paper has attempted to describe not only the benefits of an intranet but also discuss a current college environment that needs to adapt to a changing educational environment.

Introduction

An intranet can be described as a private computer network that uses Internet Protocol technologies to securely share any part of an organization's information or operational systems within that organization. The term refers specifically to a network within an organization. It can at its simplest consist of an internal network or host a large number of websites. In general it is seen as the major technology within an organisation for communication and collaboration.

However, nowadays, Intranets are far more than just a communication tool. Today's solutions are increasingly seen as broader productivity tools that include more process specific business applications and management tools. It is important that when planning your intranet you aim to develop a user centric intranet that not only provides employees with an indispensable tool to share information, manage knowledge and disseminate news but also equips them with access to business applications and management tools to further increase efficiency.

Frequently, corporate intranets have difficult navigation schemes, unwieldy search results, are difficult to maintain and update resulting in information that is out of date. This confuses and frustrates users who soon lose confidence in the intranet and usage falls away

Intranets are increasingly being used to deliver tools and applications to advance productivity. They can also be used to change corporate culture. Discussion groups and intranet forums are increasingly being used to develop new ideas in managing and quality as well as other corporate issues. As a result web metric software and user surveys can all help improve intranet effectiveness Because of the scope and variety of content and the number of system interfaces, intranets of many organizations are much more complex than their respective public websites. According to the Intranet design annual 2007 from Nielsen Norman Group, the number of pages on participants' intranets averaged 200,000 over the years 2001 to 2003 and has grown to an average of 6 million pages over 2005–2007.[1]

This paper investigates the current use of an FE College intranet against published research on the topic and endeavours to provide a strategy for implementing a more effective approach to Intranet technology in such educational institutes.

The use of Intranets

Intranets started to be used in organisations at the beginning of the 90s and have progressively become more predominant as web based technology has become wide-spread. The original basic use as an internal repository for a variety of documents has developed into a more sophisticated tool for both communication and collaboration within the corporate philosophy. Organisations see the Intranet as a means of improving employee effectiveness and as a tool for conveying the corporate messages.

Education on the other hand has struggled with this concept since their efforts have centred on the implementation of learning tools such as the Virtual Learning Environment (VLE). Intranets have unfortunately taken a back seat and mainly been used as a staff repository for information and documentation. The following section outlines the benefits of adopting a much more interactive tool that can provide corporate cohesion and effectiveness.

A useful Intranet requires an appealing, easy to use interface, integrating applications with appropriate security features, the ability to integrate new applications easily, documentation that provides help for users and applications that can be easily maintained and upgraded. A well planned and thought out Intranet can really revolutionise the way your company does business. It can certainly change the way your employees interact and positively impact all your business processes resulting in measurable business savings and a range of other benefits.

Intranets give companies the power to manage in new ways. But taking advantage of the opportunities requires shifting views from managing things to managing knowledge and information flows. Creating an Intranet that achieves all of your company's objectives AND meets your business requirements is a complex task requiring a wide range of skills.

The main features of an effective intranet can be summarised as:

- **Integration** - The ability to integrate applications, Outlook calendars and e-mail accounts as well as function to add other applications.
- **Security** - Ability to ensure security of documents throughout the intranet
- **Customization** - Features that allow users to customise area and tools and for the organisation
- **Collaboration** - Facilities to allow people to collaborate on documents or forms.
- **Communication Channels** - Features that promote corporate culture and present information in a more interactive way than before.
- **Automation** - Automated document creation, alerts and FAQs that help learn of changes and new additions to the intranet.
- **Applications** - Links to applications that allow staff perform duties.
- **User Friendly** - Easy to use interfaces that caters for a wide range of technical abilities.
- **Remote Access** - Ability for users to access content away from the office.
- **Document Repository** - Ability to store and retrieve document information while maintaining regular backups to prevent data loss.
- **Blog** - can be used as a method to provide more timely information to employees, customers, and business partners.

Intranet portal helps employees make better and more informed decisions, which result from increased knowledge. It also helps reduce costs, saves time, increases collaboration, increases productivity and effectiveness [1].

Intranet portal can help employees find information more easily and perform their jobs better, though few portal designs are optimal just out-of-the-box. In fact, especially in smaller companies, designers can realize some features found in off-the-shelf portal software through simpler (do-it-yourself) means. Most intranets have become completely unwieldy and present a highly fragmented and confusing user experience, with no consistency and little navigational support. Portals aim to correct this problem by presenting a single gateway to all corporate information and services. One benefit of creating this consistent look and feel is users need less time to learn how to use the environment. They also more easily recognize where they are in the portal and where they can go—no small feat when navigating a large information space. By integrating services and presenting personalized snippets on the initial screen, intranet portals also reduce the need for users to browse far and wide to obtain needed information, thus making it easier for them to perform their jobs.[1]

Intranet portal is a Web-based tool that allows users to create a customized site that dynamically pulls in Internet activities and desired content into a single page. By providing a contextual framework for information, portals can bring S&T (Science and Technology) and organizational "knowledge" to the desktop.[2]

The most difficult part about trying to justify the existence of an intranet is that you're trying to get management to invest hard cash for mostly soft returns [4]. These soft returns come in the form of improved employee productivity and self-sufficiency, higher staff morale, a higher level of inter-departmental collaboration and communication, and easing the process of information gathering and dissemination. Among the many intranet benefits, the most obvious are:

Replacing Hard Copies

Intranets replace the rolling and cumulative costs associated with the printing, maintaining, distribution, and storing of hardcopy documents - and this is money that you're never going to see again. In terms of financial returns, this is the most quantifiable benefit.

Reducing Time Spent Searching

The amount of time that's spent - more than 20 percent of workers' time (that's eight hours in a normal 40-hour work week) according to knowledge management professionals - searching for information within an organisation or on the Internet can be drastically reduced when employees have a central "one stop shop" for corporate content. This will allow employees to focus more on their jobs rather than digging for information

Reducing Duplication of Effort

Intranets can be used as an open collaborative tool to coordinate the efforts of various departments, workgroups, and project teams. This will have the potential of creating unified knowledge community - a central environment for knowledge sharing and management - and will minimize duplication of both effort and content.

Promoting Employee Self-Sufficiency

Intranets improve employee productivity by allowing users to quickly access content without the need for third-party intermediaries who may be unavailable to help you when you need it most. Intranets act like self-service stations and empower users with the ability to find the information they're after without having to rely too heavily on others.

Keeping Knowledge within the Organisation

When employees leave, knowledge stays. Employees come and go - they may transfer departments or leave the company entirely - and when they do, they will be taking all that knowledge they have accumulated over the years with them. An intranet allows an organisation to collect and store the knowledge and expertise of its employees, and gives it more permanence within the organisation.

Improving Staff morale

Staff morale is generally increased when employers are seen as good employers. Help your staff feel part of the team by using the intranet to keep them updated on a regular basis with company news etc. Create incentive schemes that run on your Intranet. If staff do something well reward them and promote it on the Intranet.

You could have an area on the Intranet that is full of images of the company events. Don't just use your Intranet as a corporate tool - ensure you use it as a social networking tool as well.

Social networks - organisations are rapidly creating internal social networks to give greater exposure to the profiles and backgrounds of colleagues. As we use social networks outside of work, they start to become a more natural aspect of our at-work behaviour. Employees are coming to work expecting the same types of social networking resources at their desktop that they have at home.

There are a number of business benefits to implementing social networking facilities:

- Increase productivity
- Improve internal communication
- Improve internal collaboration
- Improve employee morale and retention

Discussion Boards - promote these on the home page and enable people to share ideas Nowadays, Intranets are far more than just a communication tool and document store. Today's solutions are increasingly seen as broader productivity tools that include more process-specific business applications and management tools. It is important that when planning your intranet you aim to develop a user centric, single source portal that not only provides employees with an indispensable tool to share information, manage knowledge and disseminate news but also equips them with access to business applications and management tools to further increase efficiency.

Your intranet needs to become the starting point for all users to find the information they need and to perform tasks that make their jobs easier. Your intranet can be the starting point to access network files and management tools[5].

Also, paper processes, such as expenses and absence booking, can be automated on you intranet. Users can access specific information that is published on the intranet, e.g. your Finance Department could publish key accounts information, such as profit and loss figures, monthly management accounts etc., which can be accessed securely via the Intranet. The major uses of a corporate intranet could be categorised as:

- **Tools & Resources** -This area would contain facilities for staff to access or download resources and tools to carry out their role. It may also contain links to other corporate resources.
- **Corporate Services** - This area would provide staff with access to applications or information to aid their activities. There may be links to other services as well.
- **Corporate Policies** - An area that covers corporate guidelines, strategies and policies.
- **Calendar** - An area that covers important events and meetings
- **Web Access** -This area would give staff access to the corporate web pages for information on organisational publicity and marketing.

Types of Intranets

- **First-generation intranets** These are simple intranets designed for the user simply to look at. The user cannot enter any information and the content stays the same until someone edits the file on the server. Pages such as this are very common on sites developed by people with little technical knowledge or time. Pages in such sites are usually described as ‘static’, as the information on each page is fixed and does not change in any way. Their chief disadvantage is that such pages rarely change and so, from a user’s point of view, there is often little point in going back and reading them.

- **Second-generation intranets** Second-generation intranets, like first-generation intranets, contain static pages, but they do allow the user to carry out limited activities. Such sites will usually contain the same sort of information as described above. For example, the page may contain a holiday request form and the user can print this out, write their information on the form and post it to the HR department. Alternatively, they may click on a hyperlink that allows them to download a word processor document that they can complete and e-mail to HR.

- **Third-generation intranets** The step up to a third-generation site is very significant. Rather than being pages always containing the same, fixed content, they are now designed to extract information from and post information to a database. For example, an area on a web page in a first or second generation site would contain fixed text. However, in a third-generation site the area will load content from a database and display this. There are three reasons why the small step from second to third generation is actually a giant leap: • It becomes much easier to change the content of web pages, as all you have to do is change the information in the database. You do not need to have specialist web programming skills. • Users can now enter information directly into a central database that can be accessed by other people. This cuts out a level of processing. Because the information on the page comes from a database, it can display information fed into the database from other sources. The disadvantage with this level of sophistication is that it now requires high-level programming skills and special databases. First and second generation intranets use servers that simply retrieve files requested by browsers and send the data back, but third generation servers must send instructions to databases asking for specific information retrieve this and send it on to the browser.

- **Fourth-generation intranets** Fourth-generation pages currently represent the highest level of sophistication. Such systems recognise the user on the basis of their logging in details and then present information on the page that is relevant to that particular person. People with managerial responsibility would therefore receive different or additional information and be offered more functionality than people with no managerial responsibility. Staff working in a London office could be provided with different information from those working in, say, Edinburgh. Such systems are often described as role-based or as employee portals. Portals are increasingly being used to provide ‘the prime electronic point of contact between an organisation and its customers, partners, suppliers and employees’. 2 They do this by providing a single interface through which authorised people can access information stored in the multitude of databases that modern organisations rely on.

Information and knowledge Intranet technology makes the delivery of organisational information to the workplace much easier. Of course, that has a value in itself, but it does not necessarily make it any easier for the organisation to find out what individual parts of the business know and for that knowledge to be spread upwards and horizontally. However, it is becoming increasingly apparent that modern organisations live and die according to how well they utilise what they know about what they do and the marketplace. As part of this acknowledgement, we have seen Peter Drucker’s term ‘knowledge worker’ come into the business lexicon. Businesses are increasingly expected to manage their knowledge effectively, but in many organisations this is proving to be very difficult.

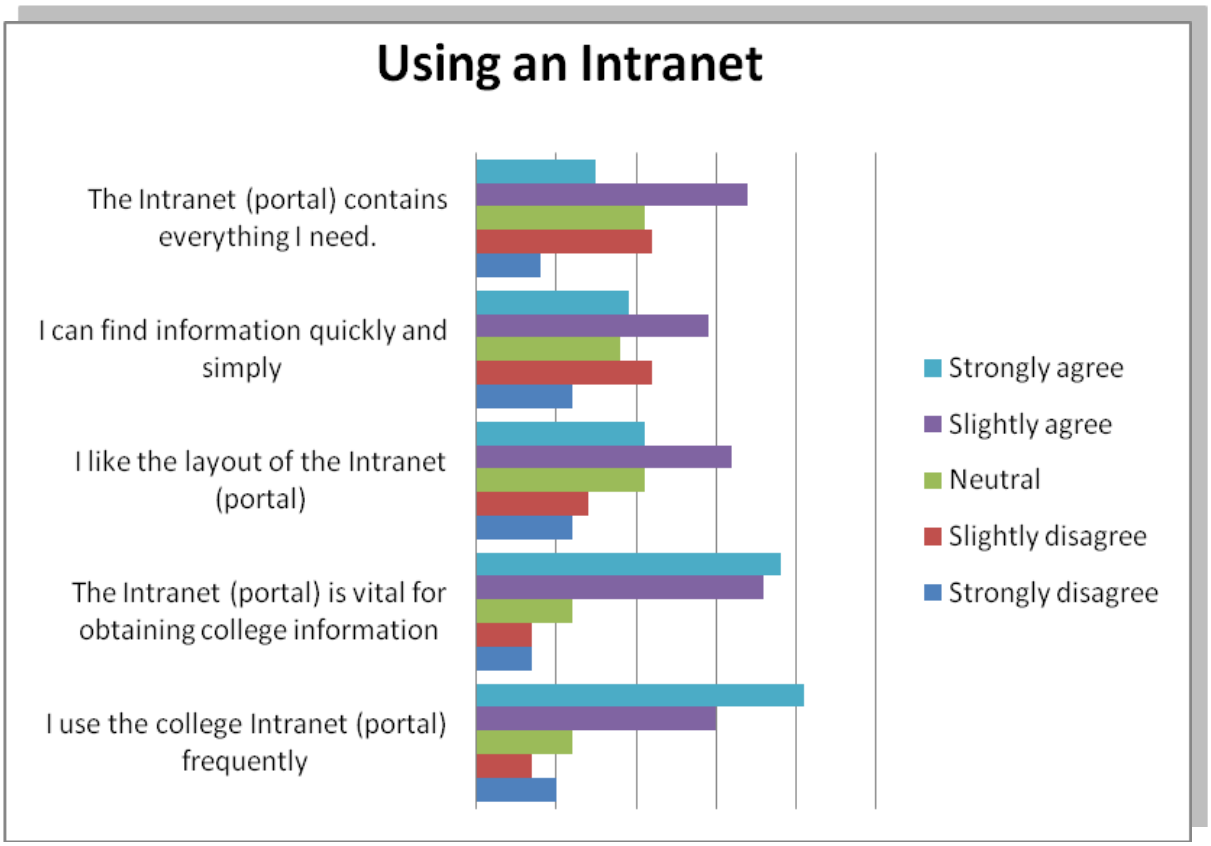
'Knowledge management' has therefore appeared as a discipline, albeit one that many people find hard to understand. This difficulty may have something to do with the function implied by the word 'management', which suggests an administrative, rather than a creative, function. This is perhaps why linking 'intranet' with 'knowledge management' leads people to think about systems that can catalogue every existing item of paper held within a business, usually described as document management systems.

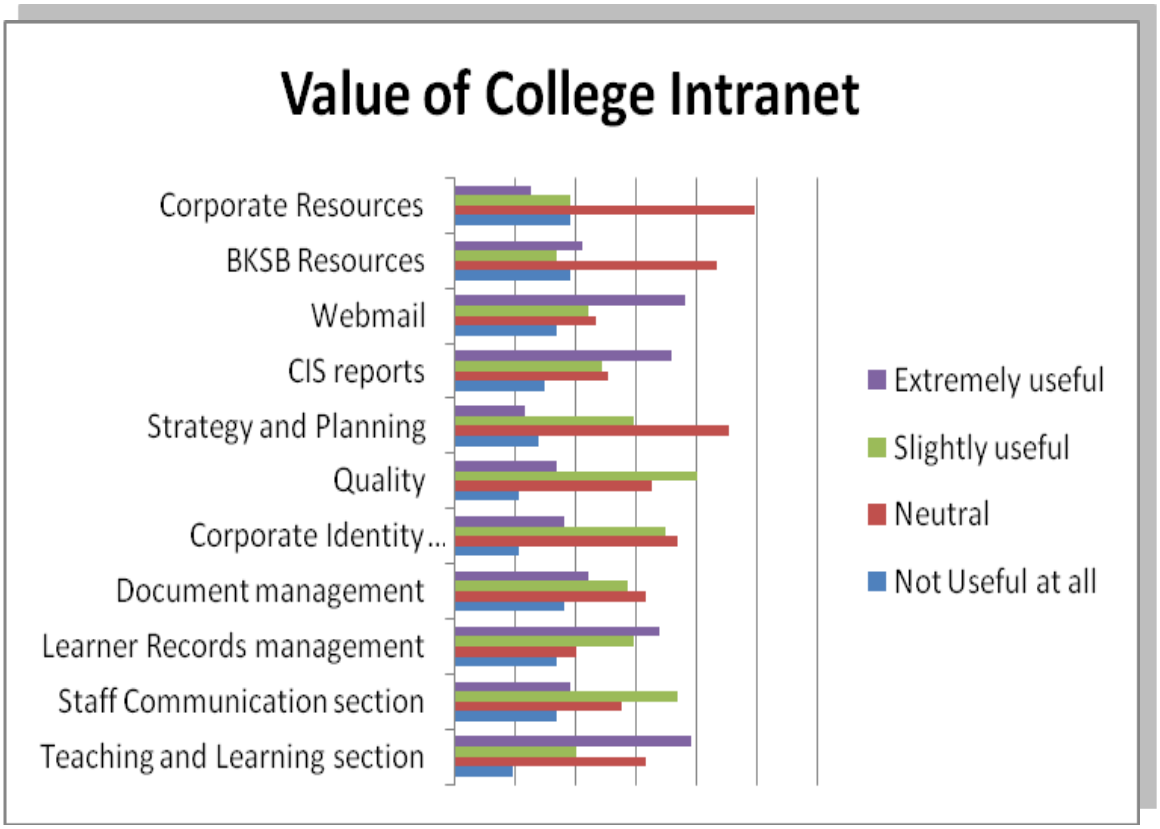
A College Intranet

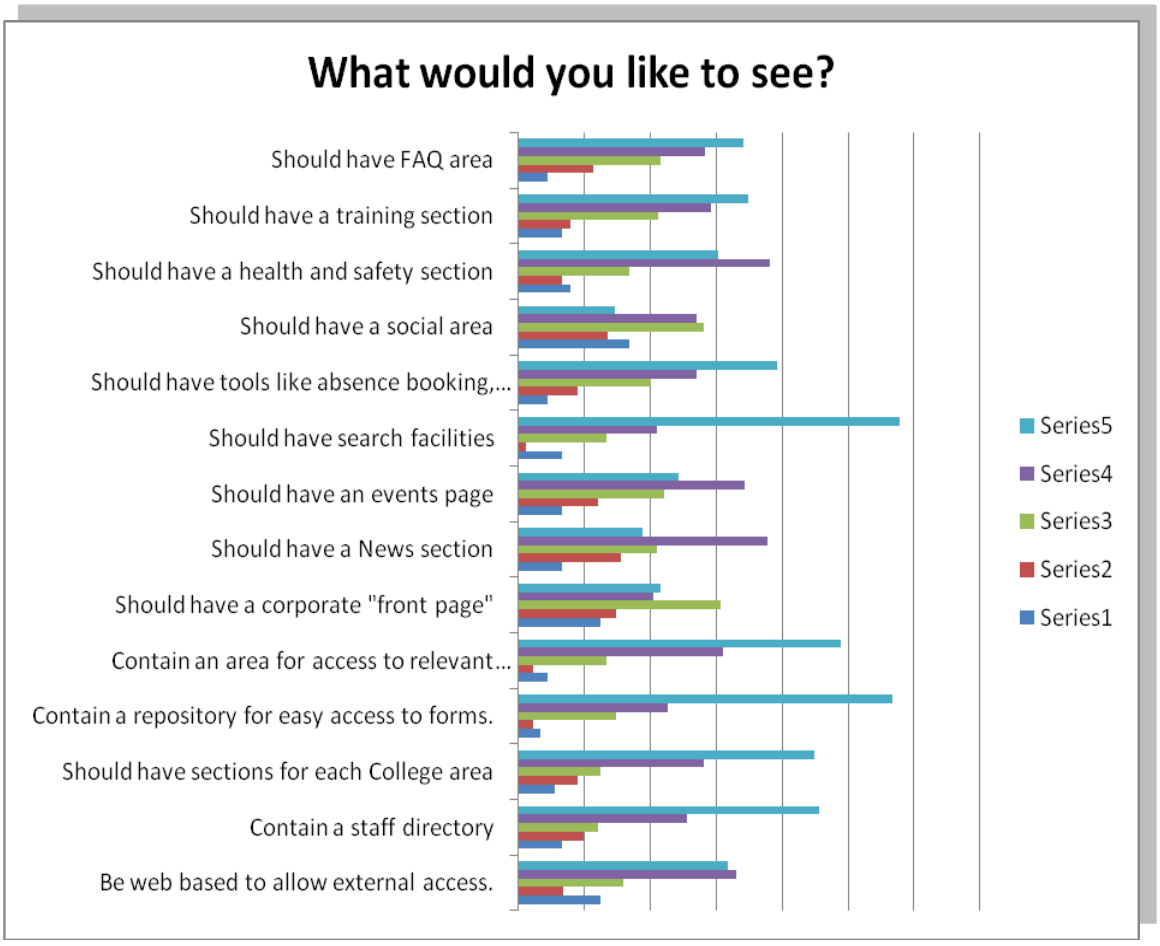
The college being studied has a second generation Intranet. It operates basically as a repository for static information relating to the college performance with references to applications that staff are required to use. There is no ability to interact with the data and any changes are carried out by a variety of administration staff.

A survey of staff indicated that this approach is not only poorly populated, it does not appear to provide staff with the sort of information they would like to access. The management of knowledge in the college is consequently not providing staff with the sort of functionality they require.

The following charts summarise the survey of around 100 staff members

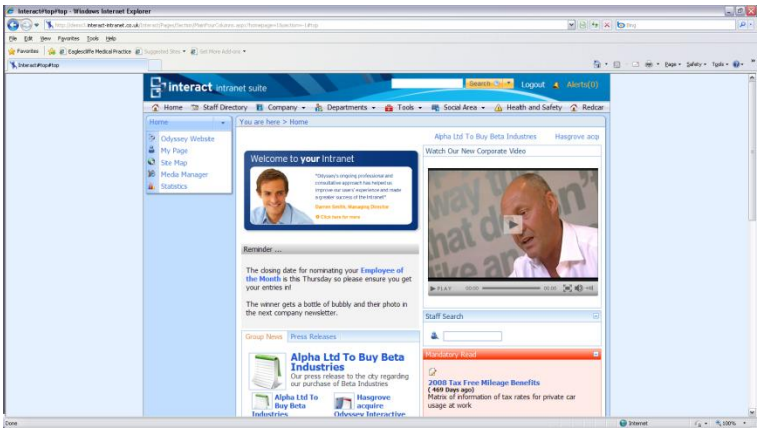



Value of College Intranet
Corporate Resources
BKSB Resources
Webmail
CIS reports
Strategy and Planning
Quality
Corporate Identity...
Document management
Learner Records management
Staff Communication section
Teaching and Learning section
Extremely useful
Slightly useful
Neutral
Not Useful at all


What would you like to see?
Should have FAQ area
Should have a training section
Should have a health and safety section
Should have a social area
Should have tools like absence booking,...
Should have search facilities
Should have an events page
Should have a News section
Should have a corporate "front page"
Contain an area for access to relevant...
Contain a repository for easy access to forms.
Should have sections for each College area
Contain a staff directory
Be web based to allow external access.
Series5
Series4
Series3
Series2
Series1

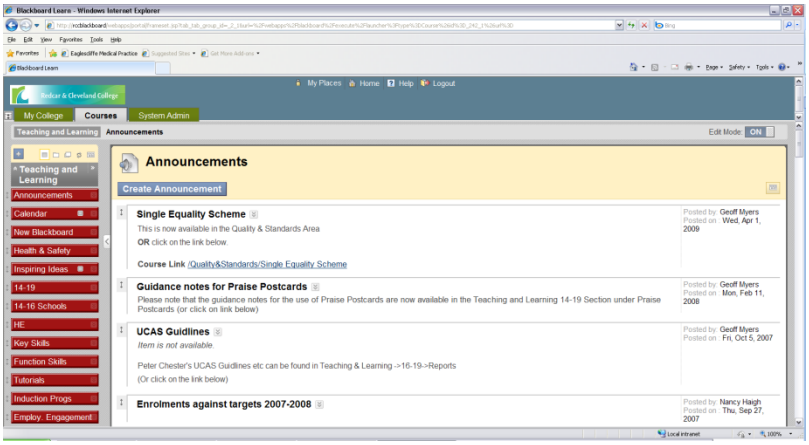
This survey provided the platform for considering how the College could manage its communication and knowledge sharing amongst staff. There were a number of approaches available:

1. Redesign a completely new Intranet that provides an interactive approach as well as offer some intelligence. A package such as Interact 4 was researched.

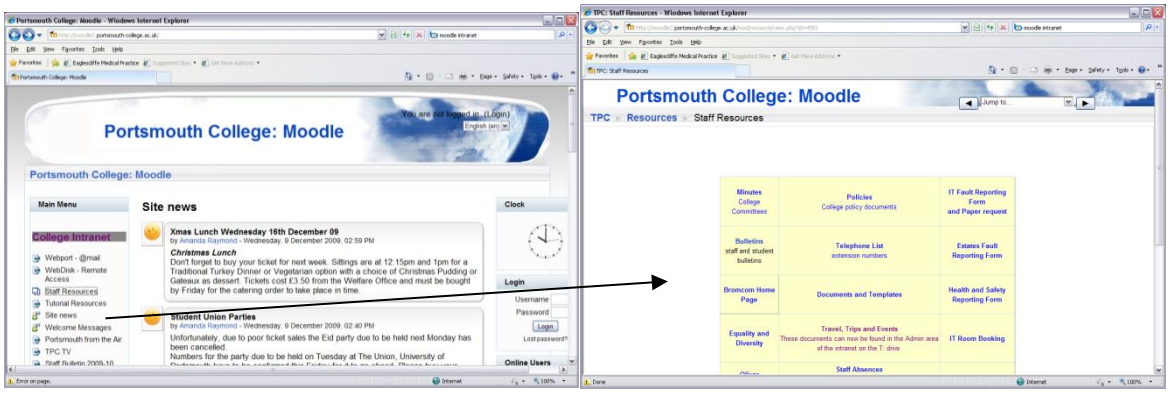


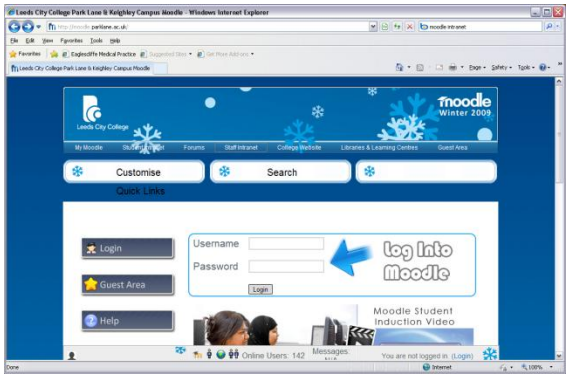
   This provides an in-house facility run by the organisation but with departmental responsibility for updating and managing. It also provides good media content and a level of intelligence that provides staff with useful search facilities.

2. Link the Intranet to the college VLE (Blackboard) as an alternative to the current version. This although limited in style does offer staff access outside the college plus all the features of the VLE.



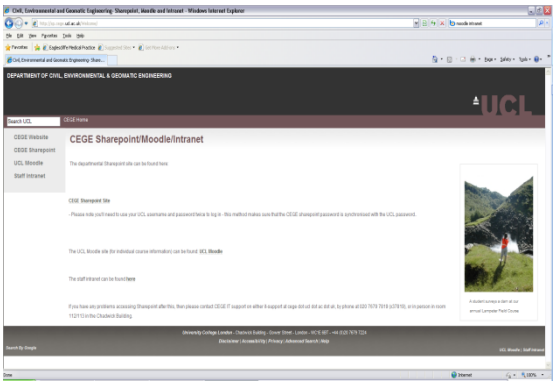
3. Implement a self developed Intranet using a package such as Moodle. Again a limited approach but does have the feature of external access. However such an approach would require IT support and appropriate maintenance functions. Some examples are shown below:


Portsmouth College: Moodle
Site news
Xmas Lunch Wednesday 16th December 09
Student Union Parties
Portsmouth College: Moodle
TPC ▸ Resources ▸ Staff Resources
Minutes College Committees
Policies College policy documents
IT Fault Reporting Form and Paper request
Bulletins staff and student bulletins
Telephone List extension numbers
Estates Fault Reporting Form
Bromcom Home Page
Documents and Templates
Health and Safety Reporting Form
Equality and Diversity
Travel, Trips and Events
IT Room Booking
Staff Absences


moodle Winter 2009
Customise
Search
Quick Links
Login
Guest Area
Help
Username
Password
log into Moodle
Moodle Student Induction Video


Solihull College
Search
College Intranet
Staff Intranet
Electronic Resources
Moodle
elibrary
Subject Guides
Library Catalogue
Learning Objects
Assessments & Quizzes
Email
Expand All
Solihull College Intranet
News
Latest News
Christmas Opening Hours - Library and Open Access Computer Centres
Library message for all HE students
ID Cards


HUNTINGTOWER intranet
Main Menu
Calendar
December 2009
Course categories
Sport 1
Senior Library 11
Accounting 2
Art 6
Bible Studies 2
Biology 2
Bruce House 1
Business Managment 2
Careers 3
Chemistry 3
Internal Sites
Library Catalogue


DEPARTMENT OF CIVIL, ENVIRONMENTAL & GEOMATIC ENGINEERING
UCL
CEGE Sharepoint/Moodle/Intranet

Conclusions

An Intranet will provide a business with many benefits across a wide spectrum, and not all of these can be evaluated with simple 'bottom line accounting' as sometimes the positive impact can be secondary, causing improved performance that is difficult to directly measure. The main driving point for managers today is the need to ensure significant cost benefits.

Intranets today are more commonly implemented for their real ability to increase efficiency and promote tremendous cost savings by making common forms and tasks available centrally and online. So, if an organisation intends to increase efficiency, whilst driving down costs and at the same time considerably improving communication and collaboration among employees, then it seems that investment in an Intranet is the only way forward.

With an Intranet organisations can cut down the time that employees spend on routine communication tasks. By putting information on an Intranet, employees can quickly and easily access documents, saving time. In addition an Intranet can help save costs. Starting with simple solutions such as a company directory (company phonebook) companies can cut down those costly printing and time consuming distribution costs.

Measuring value and return on investment for internal business systems has always been important, but now organisations want to be assured that the systems they're spending money on offer a significant return. ROI has never been more vital than it is now. One needs to be able to prove the business system is actually helping people do their jobs more efficiently. Nowadays, Intranets are far more than just a communication tool and document store. Today's solutions are increasingly seen as broader productivity tools that include more process-specific business applications and management tools.

It is important that when planning an intranet the aim to develop a user centric, single source portal that not only provides employees with an indispensable tool to share information, manage knowledge and disseminate news but also equips them with access to business applications and management tools to further increase efficiency. The intranet needs to become the starting point for all users to find the information they need and to perform tasks that make their jobs easier. The organisational intranet can be the starting point to access network files and management tools.

Also, paper processes, such as expenses and absence booking, can be automated on you intranet. Users can access specific information that is published on the intranet, e.g. the Finance Department could publish key accounts information, such as profit and loss figures, monthly management accounts etc., which can be accessed securely via the Intranet. This paper has attempted to describe not only the benefits of an intranet but also discuss a current college environment that needs to adapt to a changing educational environment.

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REDCAR & CLEVELAND COLLEGE
RAISING ASPIRATIONS
EXCEEDING EXPECTATIONS

2 E-Learning Strategy at Redcar & Cleveland College

Introduction

Redcar & Cleveland College supports and promotes e-Learning, which is defined as: "the use of information, communication and learning technologies to facilitate, deliver, support and enhance learning, teaching and assessment." The appropriate use of such technologies can enhance the quality of the student learning experience, widen access to the College courses and improve the effectiveness of teaching and assessment. The College e-Learning Strategy should comply with the requirements stated in the DfES E-Learning strategy document "Harnessing Technology"; in particular, taking account of the move towards the Personalised Learning Agenda. This approach implies that the College Virtual Learning Environment should be developed to provide a personal learning space and communications medium for both students and staff. Consideration must be given to issues of accessibility to the resources (hardware and software) required to allow both student and staff engagement with e-learning as the technology develops over the next few years. The technology should be used to support the pedagogy.

Aims

Through e-Learning the College aims to:

- Enhance the teaching and learning experience for all learners by providing learners with more choice about how, where and when they learn, so that they engage with/remain engaged with the learning process and ultimately achieve their learning goal.
- Create an accessible infrastructure with the capacity and technical support which makes e-Learning widely available, as appropriate, to an increasingly large and diverse student population.

Curriculum Development and Support

The College will provide an e-Learning environment that is accessible to students and ensures a standard quality of learning experience. This will offer students control over the pace of e-Learning, where and when e-Learning can take place and offer high quality appropriate learner assessment and feedback.

It should be noted that the College advocates a blended approach where on-line and face to face contact are integrated to provide a holistic and enhanced experience for both students and teachers. The precise role of e-Learning and the balance of the blend will be dependent upon the nature of the curriculum, level of student knowledge to be acquired and the course structure.

ELearning should be seen as a tool to enhance learning and the College VLE an environment to aid this process. It must be actively adopted and promoted within the following context:

- E-Learning is considered to form part of a wider repertoire of teaching and learning approaches and that good teaching is still the most important element of successful learning. The choice of when to use e-Learning methods involves the professional judgement of the teacher, taking account of the changing needs, demands, interests and capabilities of the students.
- E-Learning should be deployed when educationally appropriate.
- Students should have equality of access to e-Learning materials and resources and should not be disadvantaged by the introduction of e-Learning into their course.

The College has recognised the need to support curriculum staff in e-Learning developments. This should provide local technical support at Faculty level to ensure curriculum development is not hindered by lack of technical experience. Materials and environments should be regularly updated and teaching staff should not be hampered by technical issues. In liaison with the e-Learning function, each Curriculum Area will have:

- A clearly identified access point on the VLE, from where students will be able to navigate to course information, Schemes of Work, Session Plans, Session Activities, Links to further resources, such as web links, and Assignments with clearly identified hand-out and hand-in dates. Students should be given the opportunity to reinforce aspects of their work as well as the chance to catch up on missed material. Differentiation and extension activities should be available.

- Electronic assessment techniques should be used wherever possible with appropriate VLE “hand-in” areas. Students will be encouraged to use electronic methods of submitting their work for assessment (within awarding body guidelines and constraints). E-portfolios will also be investigated for future developments.

Student Skills, Training and Support

Students will undertake an induction programme which will prepare them for the demands of e-Learning and will be provided with on-going support as appropriate It is important that students are comfortable and familiar with the technical framework in the college. This will necessitate a baseline level of ICT skills for all students. Students who do not have a baseline level of ICT skills should undertake ICT development as part of their enrichment programme.

Continuous Professional Development and Support for Teachers

To support the increased development of e-Learning, all staff should be able to integrate e-Learning in to their course, as appropriate. All teaching staff must have access to Email accounts, College Intranet and the College VLE.

All new teaching staff will be provided with an extended induction to the College which will include a workshop on the Learning Resources/E-Learning. On an on-going basis, through review and appraisal, Curriculum Programme Leaders and Managers should identify the development needs of their staff in relation to E-Learning, which may encompass both the development of technical skills (eg how to use a specific package) and the pedagogical aspects of utilising E-Learning. The CPD plans of the College will take account of the development needs identified and will plan appropriate provision to meet these needs.

Accessibility and Usability

Teachers will be required to make reasonable adjustments to their practice and materials to ensure all learners can participate in the learning experience. All learners, no matter how they access course materials, should be able to receive the same learning experience as their peers. DDA, Equality and Diversity and other new relevant legislation will be taken into account when developing e-Learning material.

E-Assessment

It is hoped that developments will include E-Assessment. These activities can be used as a learning tool for students so that they may self-evaluate their knowledge and progress through a particular topic. On-line assessment requires the same careful thought and planning as a paper based assessment – it should be well structured and should clearly cover the elements of the topic being assessed.
The College will endeavour to develop electronic feedback to students in order to enhance the learning experience within the eLearning framework.

Quality Assurance

Materials on the College's VLE must meet required documentation standards which include spelling, grammar and accessibility. Consistency across sector subject areas must be sought. Lesson observations should include an evaluation of the VLE and its resources and assessment of the impact of the VLE on learners' outcomes should be built into the quality assurance system.

3 Blended and eLearning project progress Report

October 2006

Background

The initial planning of projects and determination of a suitable strategy was completed during September. This period of discussion with HoFs and HoDs resulted in a proposed strategy that covered two major aspects of approach:

- Creation of an **E-Library** for electronic material in the form of videos, videocasts and audio (podcasts).
- Development of a range of **collaboration** projects to include wikis and blogs using "social software".

A number of areas showed interest in embracing such projects and these are discussed below.

The proposed projects

A number of discussion sessions were held with several Faculty divisions and a project list has emerged with a number of individuals who have shown interest and motivation to progress the ideas. The following list gives a broad outline of the range of projects proposed:

- **Arts, Leisure, Public Salon Services:** There are a number of areas that this Faculty would like to explore. In terms of E-Library material, Arts, Sport and Public Services would like to create a resource bank of material either purchased or created in-house. This will be progressed throughout the teaching year. In addition Travel and Tourism would like to create an "internet community" with a group of their students. This will involve the development of wikis and collaborative activities. This project will be phased in during semester 2 (end January 2007).
- **Built Environment:** This faculty is keen to develop an electronic library of skill based material. This library will contain material currently purchased and digitised for access via Blackboard and additional material created within Divisions for specific skill based activities.
- **Business and Information Technology:** Although some individuals were interested, in the projects within this area, the involvement of staff is assumed to be limited. Computing and IT have proposed their own projects to explore the use of screen capture software to create electronic "workbooks" for the delivery of specialist instructor led activities. Some staff within Business are interested in creating a case study library and this will be progressed in conjunction with other e-Library activities (see below).

- **Health, Care and Education:** This Faculty has a number of HE students involved in Foundation Degrees and PGCE qualifications. It is proposed to create a collaborative project with these groups of students who are mainly adult and part-time. This will involve the development of videocasts, podcasts and mobile devices for the recording and downloading of material from the VLE. Since the project requires a substantial capital investment, research into funding opportunities is still progressing. Some success has been achieved with a little HE money and a potential sponsor could be **GovTV** who are interested in creating a video case study for the internet web site. The creation of such a video will result in sponsorship for capital expenditure. (hopefully) This project will also form part of the project manager's research culminating in the presentation of an academic paper to the ICS HE Academy annual conference. (Again funding will be forthcoming from this activity – max £3000 for staff costs and consumables)
- **Engineering, Process and Manufacturing:** This area has shown mixed interest in becoming involved. The creation of a Foundation Degree collaborative group (as above) has been discussed but staff involved on the course are somewhat concerned about the effort required. In such cases it may be prudent to exclude this division if motivation is lacking. In Science and Maths, the possibility of creating a range of electronic demonstrations and other material as part of the E-Library has been discussed and will be progressed as the year continues.

The question of E-Libraries

There is a significant interest from some members of staff to create or have available a range of materials in either video format or audio. The use of Blackboard is seen as a useful media for student and classroom access. On a small scale such requests can be handled by the project manager during trials.

Unfortunately it appears that, even though these are trials, the content being requested is increasing almost daily. We need to consider the use of specialist equipment if this trend is maintained. The purchase of a media streaming system may be necessary in the near future and this will definitely be required if the E-Library approach is transferred to the new college premises.

In addition it is apparent that as involvement in creating and purchasing electronic material increases we will need some form of management system in place. The current repository has its limitations and my discussions with staff indicate that its existence is either unknown or they feel it is far too cumbersome to use. However the LRC manager has approached the project manger to discuss the development of E-Libraries for both teaching material and text or audio based LRC material.

This appears to be the best way forward and we are exploring the possibility of drawing down some funding to develop such an idea. LRC involvement would mean the E-Library was correctly managed and indexed for ease of use.

Cost implications

Whilst running trials will indicate the potential direction the college takes regarding the integration of technology into teaching and learning, there are some issues surrounding the future IT infrastructure. The direction we take is dependent on what technology we feel is appropriate. Some issues are listed below with cost implications:

- **Video and Audio material:** The potential use of this media for supporting and enhancing teaching and learning is undoubtedly useful. Many institutions are providing such services and the creation of a well constructed and managed E-Library will possibly become a central feature of blended learning. Staff who have access to quality material, at the point of delivery or as a resource for student revision and assessment etc., will more than likely enhance the integration this into practice. However there is a cost issue that must be considered. Media streaming will become a necessity as access traffic increases. Systems to handle this approach can cost in the region of £15,000. We need to decide if this is going to provide a good ROI.

- **Social Software:** There is no doubt that the movement towards Web 2.0 and user interaction and collaboration is here to stay. The use of social software such as wikis and blogs will increase over the next few years. Users will expect to be able to interact with their internet connections and we as an educational institution need to decide how we will provide this technology. On-line discussions, interactive web space, chat and net meetings will all form part of the learning environment. Currently there are several solutions. Wikis and blogs can be hosted by third parties; Blackboard has building blocks that simulate the same approach or there is server technology to allow us to host our own systems. The projects proposed have an element of social software use built in and we need to decide how we handle this.

    - The hosted solution is free for limited use but large scale use will require a rental agreements with the provider.
    - Blackboard building blocks come at a cost and the current trial version for wikis, journals and blogs costs around £2000 per year licence fee for our size college. Is this the way to go?
    - If we decide to run our own server system, then we would need to purchase hardware and software to support this. Microsoft offer, in their new 2007 implementation, server software called SharePoint Server that allows this mode of provision. However excluding hardware, the licence to do this would cost around £1000 plus a connection cost per user at the rate of £2 per students and £20 per member of staff.
    - Provided the trials indicate a positive experience, I see the future use of mobile technology (phones, PDAs and iPods) as an integral part of

our teaching and learning environment. We will need to be able to provide text messaging and information transfer for a range of devices. We might even need to consider issuing students with a device such as an iPod as part of their enrolment pack, preloaded with college information and capable of downloading material for use in any location. Most students have mobile phones and text messaging is seen as a simple step to take to incorporate into our IT infrastructure.
    - However mobile devices are not as yet part of the student population inventory and issuing such equipment will cost around £150 - £300 per individual. The ROI however might be great with improved motivation and retention.

- **Current equipment:** During discussion with interested staff, it is apparent that there are some issues over available equipment, not only for staff, but more importantly for students. For example, the project with Travel and Tourism requires a set of PCs that are internet ready and reliable. Staff in this area complain that the equipment currently in their teaching rooms are unreliable and poor specification. This general feeling is duplicated around the college. It is therefore important that we explore these areas of concern if the pilot projects have any chance of success. Dissatisfied staff and students will create a negative atmosphere and result in projects being abandoned.

Summary

A range of projects have been initiated in several divisions which fall into the category of E-Library or Collaboration projects. These projects will be developed over the coming months and a range of material and systems incorporated. Monitoring the projects will be the next phase and the project manager wil create a set of procedures and a suitable monitoring systems to determine outcomes and success measures. Once the project manager has confirmed projects and their implementation schedules, the related IT equipment should be checked to ensure that each area involved has the best possible chance of running successful projects.

G.T. Corfield

October 2006

4 Blended Learning and the Integration of ICT into Teaching and Learning (Positional Paper)

Blended Learning and the Integration of ICT in Teaching and Learning

Positional Paper

G.T. Corfield

November 2008

Table of Contents

Abstract

This paper describes the progress made with integrating ICTat redcar & Cleveland College and the way forward for future development of ICT skills and techniques. Initial planning of projects and development of a suitable strategy was completed during September 2006. This original development plan included the implementation of a range of **collaboration** projects (wikis and blogs using "social software") to explore the value of such approaches in teaching and learning environments.. Several curriculum areas were involved in setting up trials using social software and interactive material on the college VLE. From this baseline a revised development plan saw

2007/08 saw a progressive development of a number of projects that enhance the use of ICT in teaching and learning throughout the college. Projects have concentrated on four areas:

- **Social networking and Web 2.0**: A number of projects were piloted to investigate the use of Web 2.0 technologies within the teaching environment. This project explored the use of wikis, podcasts and video using Blackboard and mobile devices (Apple iPods).
- **Papers & Conferences:** A paper on the use of ICT in teachinmg and learning was presented at the HE Academy conference in 2007 and the use of wikis to engage FE students was also presented at an on-line JISC conference in the same year. Further involvement in conferences included the HE in FE conference at the University of Teesside and the Annual Teaching and Learning Conference at the same institution..
- **eLearning**: Involvement with the University of Teesside has included membership of the Flexible Learning Working group in order to investigate and develop an eLearning strategy for the University and partner colleges.
- **Staff development**: A continuous process of staff development regarding the use of ICT in teaching and learning continued throughout this year. Staff use of Blackboard resources formed the priority, but use of electronic resources such as white boards etc was also a major development issue.

Projects over the coming year will mainly focus on the use of **social networking** as a teaching and learning tool. The development of wikis, podcasts and videocasts are techniques that Web 2.0 technology embraces. Social networking projects will continue to grow as staff becomes more aware of their use in teaching and learning and the digital environment of the new college building becomes factual.

The development plan for 2008/09 is mainly designed to embrace the use of digital techniques for the administration of learning. Projects will embrace the use of **ePortfolios** in a number of areas and this will coincide with the University of Teesside's move towards electronic assessment and recording by September 2009. The use of **virtual worlds** within teaching and learning will also form part of the continuous development plan.

Communication between staff in an electronic age is seen as a growth area for development.. Knowledge management and information sharing can become immediate and up-to-date and could free the burden of paper based systems substantially. Further investigation of such approaches will continue over the coming year in order to create a suitable management model for collaborative working.

Introduction

The ability to use ICT effectively and successfully is seen as essential to allow individuals to acquire and exploit information within their everyday activities. The appropriate use of ICT is consequently considered to be a vital requirement in today's information society and forms a significant part of most teaching strategies. A typical college curriculum incorporates the need for valid ICT and information literacy skills no matter what discipline area is taught. Such an approach has raised the question of what currently constitutes a learning environment (Pelgrum, 2000). In recent years there has been an increase in the availability of computer hardware and software in colleges and most now operate a virtual learning environment (VLE) to support the learning process. (Mumtaz, 2000). However it is also increasingly clear that having access to the technology does not necessarily mean that it will automatically be integrated as a resource within teaching strategies. This could be partly due to an uncoordinated approach which has not encouraged effective policies or planning to take place. (Fabry and Higgs, 1997; Manternach-Wigans et al.., 1999.) On the other hand, it is also evident that much of the problems surrounding the lack of meaningful integration could be attributed to the lack of awareness or lack of confidence on the part of teaching staff. (Dawes, 2000; Larner and Timberlake, 1995; Russell and Bradley, 1997.)

Successful integration into the curriculum depends on teachers being convinced of the relevance of ICT to provide access to a broader relevant range of resources for themselves and students. (Cox, M., Preston, C., Cox, C; 1999). The potential impact of informed and effective use of ICT as a classroom resource has far wider implications than merely enhancing the immediate learning experience. (Harrison, C.et al; 2002). What are the skills and knowledge needs of teachers? What are their priorities for future development? What will encourage teachers to adopt ICT where appropriate in their professional lives as classroom practitioners, as planners and managers, and as learners?

This paper defines the progress made over a three year period with regard to the development of a blended learning strategy in the college and the success or otherwise of implementing a range of technologies to enhance the learning experience of students. It also describes the progress made with integrating ICT and the way forward for future development of ICT skills and techniques.

A Strategy for Blended Learning

he initial planning of projects and development of a suitable strategy was completed during September 2006. This period of discussion with HoFs and HoDs resulted in a proposed strategy that covered two major aspects of approach:

- Creation of an **E-Library** for electronic material in the form of videos, videocasts and audio (podcasts).
- Development of a range of **collaboration** projects to include wikis and blogs using "social software".

A number of areas showed interest in embracing such projects and these are discussed below.

Initial projects

A number of discussion sessions were held with several Faculty divisions and a project list emerged with a number of individuals who showed interest and motivation to progress the ideas. The following list gives a broad outline of the range of projects proposed:

- **Arts, Leisure, Public Salon Services:** There are a number of areas that this Faculty expressed an interest in exploring. In terms of E-Library material, Arts, Sport and Public Services would like to create a resource bank of material either purchased or created in-house. This would be progressed throughout the teaching year. In addition Travel and Tourism were interested in creating an "internet community" with a group of their students. This involved the development of wikis and collaborative activities. This project was phased in during semester 2 (end January 2007).
- **Built Environment:** This faculty was keen to develop an electronic library of skill based material. This library would contain material currently purchased

and digitised for access via Blackboard and additional material created within Divisions for specific skill based activities.

- **Business and Information Technology:** Although some individuals were interested, in the projects within this area, the involvement of staffwais assumed to be limited. Computing and IT proposed their own projects to explore the use of screen capture software to create electronic "workbooks" for the delivery of specialist instructor led activities. Some staff within Business were interested in creating a case study library and this was progressed in conjunction with other e-Library activities (see below).
- **Health, Care and Education:** This Faculty has a number of HE students involved in Foundation Degrees and PGCE qualifications. It was proposed to create a collaborative project with these groups of students who are mainly adult and part-time. This was seen to involve the development of videocasts, podcasts and mobile devices for the recording and downloading of material from the VLE. Since the project requires a substantial capital investment, research into funding opportunities is still progressing. This project also formed part of the project manager's research culminating in the presentation of an academic paper to the ICS HE Academy annual conference. (Again funding was forthcoming from this activity – £3000 for staff costs and consumables)
- **Engineering, Process and Manufacturing:** This area has shown mixed interest in becoming involved. The creation of a Foundation Degree collaborative group (as above) has been discussed but staff involved within this discipline were somewhat concerned about the effort required. It was decided that in such cases it was prudent to exclude this division since motivation was lacking. In Science and Maths, the possibility of creating a range of electronic demonstrations and other material as part of the E-Library has been discussed and was be progressed as the year continued.

The progression of blended learning projects 2007/08

This period has seen a progressive development of a number of projects that enhance the use of ICT in teaching and learning throughout the college. Projects have concentrated on four areas:

- **Social networking and Web 2.0**: A number of projects were piloted to investigate the use of Web 2.0 technologies within the teaching environment. These projects included the use of wikis, podcasts and video in a variety of disciplines. The HE Academy provided funding to investigate this approach on a Foundation Degree in Chemical Technology. This project explored the use of wikis, podcasts and video using Blackboard and mobile devices (Apple iPods). Although not fully successful, the project gave an insight into what form of collaborative working was appropriate to this area of learning. In essence, students will interact with wikis etc if they are linked to assessment, but not as a general peer group discussion forum. The use of devices such as iPods were not found to enhance the students experience and any further investigation into such devices would need careful consideration in the future..
- **Papers and Conferences**: A paper relating to the above project was presented at the HE Academy annual conference in August 2008 at the University of Liverpool. The use of wikis to engage FE students was also presented at an on-line JISC conference in 2007. Further involvement in conferences included the HE in FE conference at the University of Teesside and the Annual Teaching and Learning Conference at the same institution.. A workshop on Podcasting and videocasting was also presented at the University of Abertay (Dundee) for the HE Academy and an enrichment day at the University of Teesside for local school teachers.
- **eLearning**: Involvement with the University of Teesside has included membership of the Flexible Learning Working group in order to investigate and develop an eLearning strategy for the University and partner colleges. In addition, continued involvement with the Regional Support centre at the University of Sunderland has included development of eLearning policies and the investigation of new tools for integration into teaching and learning.

- **Staff development**: A continuous process of staff development regarding the use of ICT in teaching and learning continued throughout the period. Staff use of Blackboard resources formed the priority, but use of electronic resources such as white boards etc was also a major development issue. Support of staff over this year was continuous and involved a variety of issues. This is seen as an important feature of the ILT role in the college. Support for staff prior to a move to e new building was run throughout the year on a one-to-one basis as well as a group exercise.

Blended Learning 2008/09 and the way forward.

The experience gained over the initial few months of investigating blended learning issues has shown that only certain aspects of ICT integration capture the interests of both staff and students. The development of good quality, interactive electronic resources was seen to offer the most effective return on investment. Several sources of such material was researched and the use of FENC and its knowledge base for FE has been found to be one of the best repositories for teaching staff to use. Consequently the college has now subscribed to this resource. A summary of the projects undertaken throughout this period are described below.

Projects over this period will mainly focus on the use of **social networking** as a teaching and learning tool. The development of wikis, podcasts and videocasts are techniques that Web 2.0 technology embraces. The coming year will hopefully see these techniques integrated within the college VLE environment using a Blackboard building block (CampusLX) developed by a company called Learning Objects. The latter software is extensively used amongst Blackboard users to enhance the social networking environment.

Social networking projects will continue to grow as staff becomes more aware of their use in teaching and learning and the digital environment of the new college building becomes factual. The development plan for 2008/09 is mainly designed to embrace the use of digital techniques for the administration of learning. Projects will embrace the use of **ePortfolios** in a number of areas and this will coincide with the

University of Teesside's move towards electronic assessment and recording by September 2009.

In addition to these developments, the plan will also incorporate a series of small projects funded by external sources looking at the use of technology in teaching and learning throughout the college. Projects through the HE Academy and the University of Teesside will form the majority of these activities. Presentation of this research has been and will continue to be presented at HE Academy and University of Teesside conferences.

The use of **virtual worlds** within teaching and learning will also form part of the continuous development plan. The college has obtained a Second Life Island through RSC Northern as part of a regional project to explore virtual worlds. This application will also combine with work being carried out at the University of Teesside in order to investigate the effectiveness of such technology in an FE College.

Conclusion and future development

The transition from a conventional FE establishment to one that embraces digital technology has been progressive. A range of projects relating to social networking and collaborative working has been very successful. Groups around the college have engaged in a series of projects that has integrated wikis, podcasts and video into their normal learning environment.

The college VLE (Blackboard) has slowly become a valuable resource for teachers delivering a range of courses. Initial engagement with the VLE was poor but over the last two years an increasing number of course teams have extended their use of Blackboard not only as a resource repository, but an interactive media for student engagement.

The current investigation into virtual worlds is seen as a useful addition to teaching strategies and would not only be a successful marketing tool for the college , it could also provide a new and exciting way of engaging students in the future,

Communication between staff in an electronic age is seen as a growth area for development. Projects are currently underway to explore the use of tools that allow staff to interact with shared resources on-line and contribute to projects over the internet and network. This new way of collaborating is potentially the most exciting for the college. Knowledge management and information sharing can become immediate and up-to-date and could free the burden of paper based systems substantially. Further investigation of such approaches will continue over the coming year in order to create a suitable management model for collaborative working.

George Corfield
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